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MORPHINISM

AND

NARCOMANIAS FROM OTHER DRUGS

THEIR

ETIOLOGY, TREATMENT, AND MEDICOLEGAL RELATIONS

BY

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PREFACE

HISTORICALLY, opium mania is a very old disorder. Morphinomania is the modern form of the same disease, and the various drug narcomanias which are associated with it are the new psychopathic forms due largely to modern civilization. There can be no question that these diseases are increasing, as they are certainly becoming more prominent in every section of the country. Although morphinism has been discussed by the profession for many years, the literature is still limited and unsatisfactory. A few volumes written by foreign authors, two of which have been translated into English, and three small works, some pamphlets by English and American writers, together with papers in medical journals and brief notices in some of the late text-books, comprise all that has been written on the subject. The subject-matter of many of these writings consists mainly of minute studies of different methods of treatment, with some theories and descriptions of the symptomatology and causes. In most of these works the impression is given that morphinism is a mere accidental and incidental neurosis which may be largely influenced by restrictive legislation against narcotic drugs. Every year the increasing prominence of this psychosis calls for more exact studies, with a

fuller recognition of the conditions and causes of the disease. While the general facts of disease have been recognized, they have not been studied to any great extent or from a broad scientific point of view.

Medical colleges have not yet introduced this study into their curriculums, and the dangers from narcotic drugs and other narcomanias are practically unknown to the recent graduate.

Medicolegally, questions of responsibility have been asked with increasing frequency, and there is no literature and no study of the subject to afford an intelligent answer. The special object of this work is to group the general facts and outline some of the causes and symptoms common to most cases, and to suggest general methods of treatment and prevention, and in this way try to bring the subject out from its present empirical stage to higher and more scientific levels, and to encourage further and more exhaustive studies.

This work is intended to give a general preliminary survey of this new field of psychopathy, and to point out the possibilities from a larger and more accurate knowledge, and so indicate degrees of curability which are at present unknown.

The great practical questions which appeal to the medical profession for answers may be stated as follows:

What are the causes and conditions which develop morphinism and lead to other narcomanias, and how can they be recognized, averted, and prevented?

What means and methods are essential for the

cure in the early stages, and how can they be successfully treated in the later and chronic conditions? What can be done with the growing armies of drug neurotics? How can we care for them and treat them practically?

These are a few of the problems for the solution of which this work is offered as an aid and guide.

T. D. Crothers.

NOTE OF ACKNOWLEDGMENT

This work is the practical summary of the clinical experience of over a quarter of a century of active treatment and care of narcomaniacs. During this period a great variety of facts and notes have been gathered from papers and books the authors of which are dead or forgotten, making it almost impossible to trace them back to their source. Hence we can only indicate the general sources of obligation, and this is done as a tribute of respect for the pioneer work of journals and authors. All writers must acknowledge the great value of the numerous papers and clinical notes on morphinism and other narcomanias which have appeared in the pages of the "Journal of Inebriety" since its first publication in 1876. Also to the "Alienist and Neurologist" and its distinguished editor, Dr. C. H. Hughes, and his personal writing on this subject. The papers of the late Drs. Kerr of London and Parrish of this country, also of Drs. Mattison, Lett, Waugh, Mason, Mann, Clevenger, Wood, Kellogg, Brown, and many others, have given very helpful and suggestive studies of the subject. The works of Erlenmeyer, Ball, Levenstein, and others have been found very practical and suggestive. The literature written for popular readers often contains many clear psychologic descriptions of these neu-

roses, yet in reality is untrustworthy. Vivid descriptions of opium and morphin manias have often profoundly influenced sensitive persons, and, all unconsciously, they have imitated the examples read. Medical writers with an imaginative turn have followed the same lines in their descriptions of narcomanias. This literature has no scientific value, and is of only psychologic interest.

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MORPHINISM

CHAPTER I

THE HISTORY OF MORPHINISM

Early History of Opium. Its Use as a Sedative and Narcotic. Some Theories of Its Value. The First Book on This Subject. Later Papers and Theories. Use Externally through the Skin. Early Use of the Syringe. First Use of Morphin. Recognition of the Danger of Morphin by the Needle. Early Writers and Their Views. First Classification. Its Prevalence in Europe and This Country. Chemical Properties of Morphin. Classes of Persons Using It. Use among Physicians. Difficulties in Determining the Extent of Morphinism. Cheapening of the Drug Increased Its Use. Danger from Teaching Laymen Its Use. Morphinism Due to Modern Civilization and the Strains of Constant Excitement. Neurasthenia and Cerebrasthenia as Active Causes. The Needle Fascination and Mania. Examples of Persons of This Class. Use of the Needle Increasing. Other Drugs Used with Morphin by the Needle. Morphin Peddlers. Injuries from the Needle.

The original home of the poppy appears to have been in the valley of the Nile. The first mention of its use was found in hieroglyphics dating back to a very early stage of Egyptian civilization. Homer describes, in the fourth book of the "Odyssey," a drug, which was evidently opium, sent to Helen from the wife of Thone, an Egyptian king.

Hippocrates was among the first authors who recommended its use internally. About his time it was condemned because of its effects on the vision and the great and unnatural somnolence which it produced.

In those early days one Ange, evidently a priest, used this drug, and its effects were so pleasing to him that he became very enthusiastic in proclaiming its value to the world.

There are many curious legends concerning the discovery of the effects of opium. One of these describes an Egyptian prince who was lost on a hunting tour and was carried exhausted to a hut and placed on a bed of poppy leaves, upon which he slept for two days; he then awakened with unusual vigor. This story seems to have been credited, and to have formed the basis of many theories concerning the value of poppy leaves as a remedy direct from the hands of the Deity.

In a very early age there appears to have been much rivalry concerning the superiority of opium cultivated about Thebes, called Thebaic opium, and that grown in Persia near Ispahan, called Persian opium.* Several authorities described the differences in detail, saying that the Persian opium "produced crudities in the stomach" and was not soothing like the Thebaic opium. The difference in price

* "Opium and Its Effects." Leigh.

at Constantinople is mentioned as evidence of the value of the Thebaic opium. In those early times many authors disputed as to whether opium came from the white or the colored poppy, or whether it was the meconium of the Egyptians.

It was probably used to produce sleep and to quiet the brain and nervous system. The priests believed that in some way it led the mind into the spiritual world, and that the sleep following its use was a bridge to connect the soul with the home of the gods. One of the Persian proverbs declared that opium taken internally was a remedy for many diseases, and that it also produced a disease.

Historically, the use of opium as a medicine began in the first centuries of the Christian era; and it appears to have been given for the removal of pain and discomfort. The discovery of the value of the juice and the extract was probably made by the Greeks.

The growth and use of the plant seemed to spread very rapidly eastward, probably by those ancient traders, the Arabs. In this way it passed into Persia, India, Java, and China, where it has had a firm foothold ever since. By the early medical men opium was called a stimulant, and its sedative effects were thought to be prophylactic and preventive. It was used as both a domestic and a special remedy.

The Arabian physicians seemed to have made the first studies of its value in diseases, using a decoction of the plant which was, no doubt, that of the bruised leaf and seed-pod, or an infusion made from the crushed stems. The soothing effect of this watery extract was more marked than that of any other drug. For a long time opium was used as a remedy with widely varying popularity, although always invested in myth and conjecture. Its narcotic effects were explained by all sorts of theories, and the plant was studied with superstitious reverence. The literature is a curious medley of shrewd conjecture and fanciful theories concerning its effects and action on the brain and body, lacking in moderate scientific spirit.

The period of exact study begins with the last century; and while the sociologic and moral effects of opium-taking have attracted much attention, the exact medical study has not advanced very far, and is still a neglected field. A century ago, in 1786, "Opium and Its Effects" was the subject of a prize essay by Dr. John Leigh before the Harveian Society, England. This essay had a wide circulation at the time, and was the beginning of a new literature. It described opium and its value in a variety of diseases, giving experiments and details, proving its usefulness in many ways. This book was dedicated to George Washington, and many copies

were sent to this country, some of which may yet be found in the libraries.

In many sections of Europe the poppy was cultivated, and used as a domestic remedy for pain and headaches and general diseases. According to some old books and papers, it was widely used, principally for its effects in suppressing dysentery and diarrhea. One of the earliest attempts to use opium was advocated in a little book published in 1809 by Dr. Ward, of Manchester, England. He claimed that opium (probably a solution evaporated to a paste) rubbed on the skin would be absorbed by the lymphatics, and thus allay irritation and pain and produce sleep more pleasantly than by any other method. This was no doubt the first reference to what eventually became the hypodermatic use of opium and its alkaloids.

In 1855, Dr. Wood, of Edinburgh, advised making an incision in the skin and injecting the drug into the tissue. Before that time, in 1838, Dr. Rolland, an English physician, praised the use of opium paste for local neuralgias; also for painful sores. Later a syringe was used by which a watery solution of opium was injected. From this time the syringe came into use for the purpose of introducing medicines under the skin, and was supposed to be a very great advance in the therapeutics of that day.

Anstie and others wrote at some length, praising

this method for its economy and freedom from irritant effects. It was also claimed to be more rapid and permanent, and to interfere less with the functions of the body than any other method of administration. Therapeutic authorities in those days urged that hypnotics or anodynes should never be administered by the mouth in acute diseases attended with anorexia.

The discovery of the chemical properties of opium makes an interesting page of medical history. The poppy plant and opium had attracted so much attention by its wide range of usefulness that the attention of chemists was early drawn to it. Dr. Luria,* in his recent essay on opium, says:

"From the dawn of the last century our best and most eminent physiologic chemists have devoted special care and attention to the study of this most marvelous plant. To the indefatigable researches of these pioneers in the field of physiologic chemistry the medical world owes a great deal of gratitude, as their investigations into the nature of the poppy plant carried them to the discovery of those vegetable alkaloids which have proved to be the active principles of the plants wherein they are found, and that since have had such a remarkable success in the treatment of disease. The honor and the

*"Morphine and Its Alkaloids," by Dr. Luria. "Merck's Archives," April and July, 1901.

credit of having been the pathfinder of this new era of investigation belong to the apothecary Serturner, at Einbeck, in the province of Hanover, Germany. The seed sown by Serturner fell upon fruitful soil, and thus, in 1803, Derosne announced to the scientific world his discovery of a crystalline body that he obtained from opium, and which he called the 'salt of opium,' believing it to be the active principle of the drug. But such was not the case, as was later demonstrated by Robiquet. In 1804 Seguin isolated another crystalline body, which time and experience have proved to be the real narcotic principle of opium. But Seguin did not realize the importance of his discovery, only considering it as a mere scientific curiosity, which, however, attracted but little attention. Thus the matter remained quiescent until, in 1817, Serturner again proclaimed the existence of a saline compound in opium, endowed with a peculiar alkaline principle and united to a peculiar acid, thus clearly demonstrating the real nature of the substance discovered by Seguin and himself a little over a decade before. This salt, destined to play an important rôle in modern therapeutics, he called 'morphium.'"

A description of the other alkaloids and derivatives of opium will show the value of this plant: "Besides morphin, which exists in opium with sul-

phuric and meconic acid, there is also to be found in it a certain amount of lactic acid; but this is held by many chemists to be only an accidental constituent originating during or subsequent to the process of the collection of the juice. In the course of time several other basic substances have been isolated from different varieties of opium, but their amount rarely exceeds 1 per cent. Among these is to be named the oldest alkaloid, the one that was discovered in 1803 by Derosne and named by Robiquet 'narcotin,' a name which it still retains. It exists in amounts varying from 2 to 4 per cent. Then narcein, codein, thebain, papaverin, meconin, cryptopin, meconidin, hydrocotarnin, laudanosin, protopin, laudanin; also a few other bodies of a feebly alkaline or neutral nature, as lanthopin, etc. Besides, there are several derivatives. The most important so far derived from morphin is called apomorphin. All the organic bases of opium produce a deviation of the plane of polarization to the left. Opium contains, besides, in no mean amounts, several resinoid bodies. Furthermore, it exhibits a variable amount of mucilage, a gum distinct from the ordinary gum-arabic. It also contains pectin, albumin, and a waxy material consisting chiefly of palmitate and creotate of cerotyl; also calcareous salts in amounts varying from 4 to 8 per cent. Not infrequently sugar is also found in opium, but

the question yet awaits solution whether this is a natural constituent of the opium or whether it forms a part of the adulteration of the drug. The amount of mucilage present influences the value of opium for smoking purposes a good deal, since the Chinese estimate its value roughly by the mere 'touch'; that is to say, they gage it by the rapidity or slowness with which a thread drawn out from the mass will break by its own weight. These are the principal chemical constituents of opium, of which morphin and codein are quite extensively used in medicine, while narcein has found favor with a few physicians. Narcotin itself is practically never used; but a derivative of it, cotarnin, is very much used at present as a hemostatic. Its hydrochlorate is known as stypticin, and is employed extensively in menorrhagia, metrorrhagia, subinvolution, hemoptysis, etc. Its (stypticin's) dose is from ¾ to 2 grains, and it may be given in pill form, in solution, or hypodermically."

Opium had been given subcutaneously in the form of pastes or injected as a watery solution under the skin for a long time. One of the earliest references to the use of morphin in this country was by Drs. Isaac Taylor and Washington, of New York. In 1839 in dispensary practice it was given with a syringe for various purposes. In 1843 Drs. Wood and Rynd made a solution of morphin to be used

by the needle. Fordyce Barker, in 1856, brought over from Edinburgh a small syringe by which he used morphin under the skin. Tiemann began to make needles about this time, patterned after the one of Barker.

In 1864, the "Lancet" published a number of articles pointing out the danger of the use of morphin as an addiction. This was probably the first warning note against its use.

In 1866 Pravaz introduced into the French army a compact little syringe by which morphin was injected under the skin, in the treatment of wounds in both field and hospital. This popularized its use, and from that time the use of morphin by the syringe has extended widely to all classes. Enthusiastic physicians used the needle for nearly all conditions of pain, and wrote praising this method of treatment. Several elaborate papers appeared giving minute accounts of the best methods of using morphin by the needle. Elaborate theories of the physiology of the drug administered in this way, and the technique of its administration, multiplied rapidly, and for a long time occupied much space in medical literature. Occasionally some one pointed out bad results from its use, but this attracted little attention. Finally a book on this subject, by Dr. Kane, sounded a strong note of warning in the conclusion that morphin should never be used hypodermically

in chronic disease of the kidneys, and that it was dangerous in delirium tremens and mania; also that its use in anemia and diseases of the lungs was full of peril.

In 1864 Nausbaum appears to have been the first of the German physicians to call attention to the injurious effects of repeated injections of morphin. From this time the literature of this subject attracted attention. A few cases were reported of ill effects following the injection and its continuous use afterward, but these were considered anomalies, and explained as caused by the weak will of the patient.

In 1870 Dr. Allbutt published in "The Practitioner" a strong paper pointing out the danger from repeated injections of morphin, and the difficulty of restraining the patient. He distinctly showed that while this drug relieved the severe pain for which it might be given, it caused an artificial craving with marked symptoms of poisoning. This was probably the first outline of morphinism as an intoxication and disease. Later, Laher, Fielding, Hirschfeld, Michel, and others wrote confirming these statements, giving examples to sustain their views.

In 1877 and 1879 Lewenstein wrote a monograph on morphinism. His work contained the best account of this disease up to that time. Dr. Clark,

in 1879, gave in the "Lancet" a good description of the withdrawal symptoms of morphinism, and Griffiths, in the "Guy's Hospital Reports" of that year, confirmed and added to this a clinical history of cases.

From this time on a great many writers, both at home and abroad, have described these cases and some of the symptoms with more or less minuteness and accuracy. Drs. Parrish and Mattison, in this country, contributed excellent papers:* Parrish, on the philosophy and causation of opium addiction; Mattison, on methods of treatment.

In Germany, writers began to classify and describe the disease. According to Regnier, they could all be divided into two classes: Those who could stop the use without suffering, and those who had gone beyond this stage, where the craving was irresistible. Another writer made three classes: Those who use morphin for pain; those who continue it after the causes have been removed; and those who use it for the pleasure which it gives. A number of authorities finally settled upon two classifications: one in which the morphin was used for pain; and the other for pleasure.

Later researches have thrown doubt upon these distinctions. All modern writers recognize the

* "Diseases of Inebriety." Crothers. E. B. Treat & Co., 1893.

rapid growth of this disease and its prevalence where it is least expected. The possibility of concealing its use for many years has made it a most seductive addiction. Its use is prevalent in France and Germany, where entire villages are said to be filled with morphin-takers.

From the amount of morphin consumed in unknown ways, evidently there is a very large number of habitués in the United States. The sale of morphin in some large cities indicates that not half of the amount sold is traceable to legitimate demands by physicians and hospitals. The enormous balance is consumed in some unknown way. Statistics of the sales of drug-stores show that a very large part of the total is bought by laymen. In one village in central New York a small drug-store sold forty ounces a month. In towns where there is no restriction on the retail sale of morphin, certain stores sell regularly large quantities to persons who are known to be addicted to its use.

It is said that the regular morphin consumer patronizes several stores from one to two years; then changes, going to some other place. Often these rounders are known to many druggists, who sell them small quantities daily or weekly until they appear to be diseased; then the drug is refused. Not being able to purchase it themselves, they buy through an agent.

There are large numbers among the lower classes of the great cities who consume morphin constantly. Some local statistics would seem to indicate that business men, speculators, and persons who lead a life of excitement are among the prominent consumers. The broken-down alcoholics are known to contribute a large proportion of their numbers to this class of purchasers. One author asserts that merchants, lawyers, physicians, and politicians, with women of the leisure class, are the most numerous of the drug-takers.

Some recent statistics indicate that the medical profession furnishes a large proportion of cases. In France and Germany, among the morphin cases known, the physicians are most prominent. In a study of 3244 physicians in this country 10 per cent. were estimated as either secret or open users of the drug.* These figures are sustained by a great variety of evidence from many sources.

It is difficult to determine the extent of morphinism in any one occupation in this country. One reason is that many persons in different situations after a few years' addiction to morphin become invalids and die from other diseases, the morphinism not being recognized as the original cause. It has been asserted that there are over a hundred thousand persons constantly using morphin in this

* "Medical Record." Crothers. November, 1899.

country alone. This assertion is sustained by a careful study of comparative statistics.

From hospital and drug-store statistics it is evident that the percentage of persons using morphin varies widely in different towns. One of the collected lists of addresses for sale is that of ten thousand morphin-takers. While it is impossible to verify such lists, it is evident that they represent the most noted and confirmed cases, and do not include the pauper or tramp, whose presence is so familiar in the large cities during the winter. In all probability they belong to the middle and lower classes, with a sprinkling of wealthy persons who are chronic cases.

Ordinarily not one-tenth of the cases of morphinism are known to any except their most intimate friends. Some authorities believe that even less than this percentage is known, and therefore unsuspected. Statistics in certain localities sustain this assertion.

In all probability, morphin is the drug most commonly used. Opium, in the powder or tincture, is not a popular addiction, and comparatively few persons depend on this. All morphinists turn to opium when they cannot get the former drug; or when they are unable through poverty to buy anything else, will use laudanum or paregoric; and if still further reduced, cultivate the poppy for its

crude gum. Wholesale drug-houses in certain cities have an enormous trade in morphin, and in different sections of the country the sales are far beyond the natural demand.

The cheapening of this drug has undoubtedly increased its use, and wherever it can be procured without much difficulty, there the demand is increasing. On the frontiers and in centers of great business excitement and nervous strain it is used more and more.

No doubt irresponsible and irregular doctors contribute very largely to the spread of this addiction. The custom a few years ago of teaching patients to use the needle and furnishing them with the drug to relieve states of neuralgia and unexpected pain paroxysms was very dangerous. This practice undoubtedly made many morphin victims. Foolish physicians who thought the whole province of medicine was to relieve pain under all circumstances, and who used morphin in a routine way, have made many victims of this class. Many quack medicines for the relief of pain contain morphin,* and when this is discovered, the purchaser buys the drug direct, and its use is continued.

Probably morphinism as a disease is due in a large measure to modern civilization, associated with the rapid exhaustion following changes of life and living;

* "Journal of Inebriety." January, 1890.

also from absence of nerve rest, and the continual strain upon the organization in its effort to become adapted to new environment. This is accompanied by discomfort and pain, for which morphin is a temporary alleviation. The impression once made of rest and removal of suffering is rarely effaced, and the desire to resort to the remedy again under stress is so great as to be finally irresistible.

Morphinism is a modern disease, and threatens to be one of the most serious menaces accompanying twentieth century civilization. Neurasthenia and cerebrasthenia are new differentiations of nervous defects incident to the times; and morphin is the new solace which gives temporary relief and conceals the real condition while intensifying and increasing it.

Some literary writers have given vivid descriptions of the effects of opium on themselves and have conveyed the impression that its use within certain limits was not harmful. The gum, powdered opium, infusion, or tincture was used, often in large quantities. De Quincey was able to use at one sitting a quart of laudanum. This habit he could abandon at times without assistance, resuming it again readily. Had he used morphin with the needle, the quantity required would have been less, but he never could have abandoned it.

The fascination of the needle is profound and

wide-reaching, and in most cases the rapidity and certainty of its effects without unpleasant consequences leave a mental impression not easily effaced. There is a certain contagion associated with the prick of the needle, and the restful calm which follows is both physiologic and psychic in its effects. It is now well recognized that there is a needle mania demanding that drugs be used, confident that their power will be increased and their action be more certain and rapid in this way.

In the treatment of morphinism where this needle mania is present, injections of water are often equally efficacious and satisfactory. This mania is likely to occur in neurotics who, when suffering from other diseases, have obtained marked relief from drugs given in this manner. The impression is so pronounced that ever afterward the same means are used and the same results sought for. Some psychologic effect has produced on the brain and nerve-centers a profound conviction of the value and power of medicines so given. Some examples of this needle mania will be interesting.

A man of culture, a neurotic, and of intense nervous organization, became a morphinist through the pain and sequels of intermittent fever. He was treated at home, and the morphin removed, but the use of the needle was continued. When this was stopped, he became excessively nervous, in-

somniac, and suffered from great depression of spirit. His family physician finally prepared some distilled water and ordered its use three times a day as a medicine. The patient has continued this for several years, and is in very much improved health and attends to business with but little change. He takes two injections a day with great regularity, and actually suffers if he does not get them. The physician, recognizing his credulity, thinks it wiser to treat it than to break it up and cause him to depend on some other more dangerous method of treatment.

The second example is that of a woman in middle life, who, after a severe surgical operation, and persistent pain for a long time, became a morphinist. She was treated successfully in an asylum, the morphin removed, but on her return home she became possessed with the idea that something might happen to her heart and she might die before help could be procured. She begged of the physician to give her a needle and a morphin solution, that she might use it to avoid this danger. She was very earnest in her fears of contracting an addiction, and for a time, when these obsessions came upon her, consented to have the physician use the needle. When it was found that her fears were hysterical, the physician prepared a bitter water solution and gave her a needle with strict injunctions not to use it except as

a last resort. This she has continued to do for four years, only occasionally using the needle, and always with the greatest benefit. When the threatened collapse appears, she struggles against it for a few hours, then finally uses the needle, obtains relief, and sleeps for a time. On awakening, she is calm, but filled with dread that she may use it again and thus become addicted to its use. The mind is occupied with efforts and fears to prevent the return of the conditions which call for the needle. This passes off in a day or so; then a long uncertain interval follows in which no fears or fancied dangers appear. The family physician, by advising active hygienic measures and much outdoor life, has succeeded in breaking up the fear of heart failure to a large extent; hence the use of the needle is less frequent.

The writer was called in consultation with a physician who had for two years been giving a patient water by the needle for an imaginary brain trouble. The patient had been a mild morphinist. The drug had been removed, but the use of the needle could not be abandoned. The physician had tried many ways, but had failed. When the injections were not given regularly, extreme prostration and hysterical dread of death and pain filled the victim's mind, also fears of poisoning and injury from drugs given by the mouth. When the

needle was resumed, all this passed away, and the patient was able to be up and to attend to some business. The result of most elaborate efforts to break up this addiction was that the patient was obliged to have two injections a week given by the physician. This seemed satisfactory, and has been continued up to the present time.

A fourth example of the same class brings out the domination of an idea and its controlling influence over a mind which should be able to discriminate. A lawyer and judge, an active and overworked man, living unhygienically, became impressed with the idea that only drugs by the needle could produce any permanent effect on the body. This came from reading a monograph written by an enthusiastic physician to prove that drugs given in this way could not injure the system and that the beneficial effects were more rapid and certain. The family physician, recognizing his whim, consented to treat him with the needle on his promise not to use anything except what he should give him. He began to give him injections of colored water, and at the same time to advise certain changes in his diet and work. The result was very marked. The patient recovered, but the injections were continued. For the next five years whenever he felt badly the injections were used. He refused to take drugs in any other way, and his family doctor wisely

directs his life and diet so that the necessity is very slight.

These examples are not common, but they exist, and indicate to what extent the fascination of the needle may grow. There is undoubtedly in all such persons a strongly marked neurosis with the addition of hysteria.

In the ordinary treatment of morphin cases it is quite common for patients to persist in the use of the needle, and to believe that no good results can follow morphin taken in any other way. Often in the withdrawal treatment persons will be found who have secreted needles for the purpose of using them on themselves should occasion occur.

A morphinist who had fully recovered, and had not used any of the drug for two years, carried about with him a needle and a small bottle of morphin to use in some great emergency. He boasted of his ability to abstain by showing the needle and morphin which he carried. To break up this fascination for the needle itself is often more difficult than to treat the drug addiction.

Curiously enough, the ill effects following the use of the needle, such as pain, abscesses, and inflammations, do not seem to have a deterrent effect. The persistency in its use remains.

There seems to be a very rapid increase in the use of morphin by the needle. Every year patients

suffering from this form of addiction become more numerous. Often cocain is combined with morphin, and frequently strychnin; sometimes as high as two grains a day have been injected. The combination of cocain and morphin is always dangerous.

In some sections of the country peddlers carry with them syringes, and for a consideration treat persons who are suffering from pain and distress by injections of morphin. According to Dr. Marks, of St. Louis, a number of peripatetic "doctors," so called, travel about the country prepared to give relief to anybody who may ask for it. These morphin peddlers are frequently addicted to the use of the needle, and have certain regular customers among the lower classes who receive injections daily. On the frontiers, where conditions of excitement and nerve strain react in exhaustion, these morphin dealers are in great demand.

Institutions which claim to be hospitals or sanatoriums, in many instances depend largely on the secret or open use of this drug for all forms of diseases under their care. There can be no doubt that in this way much of the morphinism comes from its surreptitious use by dishonest, unprincipled persons. Careful study of morphinism shows that not one-fourth of the cases have contracted the addiction from curiosity or association. Of the remainder, a large percentage are undoubtedly first

due to its reckless use by ignorant and unskilled persons as well as physicians. This is clearly evident from the fact that a large number of physicians, and many others, do not understand the danger from the use of morphin by the needle. As physicians, they are taught to prescribe it for transitory and other pains, with little thought of any possible dangers from its continuous use.

A number of cases have been published of tetanus following the use of the needle in morphin-takers. While it is evidently not a very common occurrence, there is always the possibility of it wherever the needle is used very freely. Most of the cases reported were those of persons who used the needle without regard to cleanliness, and who were probably predisposed to convulsive states. Such cases appear in persons where the needle has been used several times along the tract of the large nerves, followed by abscesses. In other instances the use of morphin in cicatricial tissue where abscesses have occurred before is followed by tetanus. The progress of the disease is rapid, and death follows in a few hours to a day or so. The appearance of of the spasms is usually followed by increased doses of morphin, which no doubt are very influential in hastening the fatal issue. Most of the cases have occurred in persons where the injections were self-administered and under conditions of carelessness.

In all cases this form of danger should be recognized as possible, and great care should be exercised to prevent poisoning by the use of the needle.

CHAPTER II

SOME DISTINCTIONS, CLASSIFICATIONS, AND STAGES

The Term "Morphinism" Described. Morphin: How Taken. Who Are Morphinists? Who are Morphinomaniacs? The Two Classes and Their Relations. Thought to be a Moral Disorder by Many Persons. Fascinating Effects at First. Nervous Invalids Most Easily Affected. Morphin Hunger. What Constitutes Morphinism? Egotism and Cunning in Explaining the Use of the Drug. First Symptoms. First Pathologic Effects. Predispositions, Hereditary and Acquired. Impairment of the Higher Brain. Three Stages of Morphinism: First, When Morphin is Used for Some Specific Effect; Second, Morphin Used for Its Mental and Physical Effect; Third, Where Morphin Cannot be Abandoned without Discomfort. Examples of These Three Stages. Another Class Who Begin and Suddenly Stop the Use of Morphin without Any Apparent Cause. Examples.

The term "morphinism" describes a condition following the prolonged use of morphin either by the needle under the skin or in solution by the mouth.

Morphinomania is a term used to designate the condition of persons in whom the impulse to use morphin is of the nature of a mania, possessing the mind and dominating every thought, leaving but one supreme desire—to procure morphin and experience the pleasures it gives. Such a person insists on relief at once, and is not contented with anything less.

Usually morphin is taken by the needle, and, like a dipsomaniac among the alcoholics, the impulse of the sufferer to procure narcotism and rest is a veritable mania. Such persons exhibit intermittent nerve storms or periods of great excitement, nervous discomfort, and psychic pain, which may pass away and return again after an interval.

The morphinist is a temporizer. If he cannot procure morphin, he will use spirits or any other narcotic until he secures drug rest. Unlike the morphinist, the morphinomaniac will not be satisfied with anything but the one drug, and that must be had at once. If he cannot procure morphin, opium in any form will be used. The morphinomaniac is often a psychopath from heredity, with a defective neurotic organization, while the morphinist may simply have a poisoned, exhausted organism. The morphinomaniac seldom uses cocain, chloroform, or ether, but the morphinist turns readily to these drugs. The morphinist not infrequently becomes a morphinomaniac. His former secretiveness disappears, and delirium and delusional states appear, often ending in insanity or in death from acute inflammations.

These two classes are not always marked. They frequently merge into each other, making it difficult to distinguish between them. When they can be separated, the prognosis and treatment are more certain.

These forms of morphinism are not confined to one class, but appear in persons of all social ranks. Morphinism is often noted in the prosperous classes, while morphinomaniacs are seen lower down, among the tramps, criminals, and degenerates. The latter class appear frequently in public hospitals and dispensaries, where their addiction is associated with chronic diseases. The use of morphin is considered by most hospital physicians as a moral disorder, hence it is of minor interest to them and rarely excites much attention.

Morphinism is one of the most serious addictions among active brain-workers, professional and business men, teachers, and persons having large cares and responsibilities. There is something very fascinating in the physiologic action of morphin which enables the judge who is nervous and confused, after the use of a single dose to regain his former clearness and self-possession; or for the tired physician suffering from unsteadiness and exhaustion to become strong again.

In this way business and professional men, scholars, teachers, and others, are able to overcome difficulties and to go on with more confidence and clearness after the use of morphin than before. The large army of invalids who suffer from nameless real and imaginary ills find in it a most pleasing nepenthe. The idlers who suffer from ennui and

are tired with the monotony of life have a new world opened to them by this drug. No wonder the degenerate, starved, and depressed pauper turns to it for a solace which no other drug can bring.

The relief and temporary narcotism are delusive, from the fact that the latter produces a pathologic condition demanding a repetition of the dose until the disease impulse for more is finally uncontrollable. The morphin hunger is more persistent and difficult to overcome than the desire for alcohol, and far worse in its effect upon the physical and mental organization. The higher the brain culture and development, the more certain and persistent are the disastrous defects produced by it. In all this the concealed degeneration makes it more delusive. The early use of morphin, and sometimes its continued use for years, may exhibit little physical impairment, but in all cases the will and moral forces suffer from the beginning.

The question has been asked, When can you properly designate a patient as a morphinist? The answer is, Whenever this drug is used regularly for any purpose whatever, the person is a morphinist. The gourmand, or one who suffers from indigestion and obtains relief by this means, or one who has insomnia or neuralgic pains and uses this drug, is a morphinist.

In a certain number of cases morphin is used with-

out any special reasons, and with apparent unconsciousness of the dangerous consequences. This condition, in which the person acts automatically and without motive or purpose, has been called psychic paralysis. Such persons show great ingenuity in explaining their motive for its use, ascribing it to the most absurd reasons; and when the danger is pointed out, are strangely egotistical in the assertion of their strength and power of self-control. This egotism grows with the years, and is always a veritable delusion. In such cases there is an opinion that the use of the drug is always outside the danger-line, and can be checked any time. But actually no known dividing-line exists between the use and abuse of morphin. While it may be taken medicinally for temporary effects, and abandoned again, there is always a certainty that the giving-up of the morphin after continued use will become difficult, and perhaps impossible. Each narcotism or sleep from morphin increases this peril.

While all persons who use morphin do not become chronic or habitual users, the number is so large and the desire increases so rapidly that those who escape are the exceptions to the rule. The early relief which morphin brings to the neurotic sufferer is often the beginning of an unknown journey, ending in disease and death.

To limit the term morphinism only to persons

who use the drug constantly is to ignore a long preliminary stage in which the disease existed as certainly as in the later stages. A large proportion of this class have found the first use of morphin pleasing, and its first narcotism was followed by no unpleasant symptoms. While morphin is always a narcotic, its first effect in many cases is that of a stimulant, and later, after the narcotic effect has passed off, irritation and nausea follow. Still later, headache and general depression of uncertain duration come on.

In many cases the first use of morphin is followed by great depression, with disturbance of the stomach and general irritation. These unpleasant effects often are easily overcome, and with repeated doses grow less and less and then disappear altogether.

Some morphin-takers have digestive disturbances from the start, and never fully recover from the irritation which seems to be associated with the narcotism. These poisonous effects are fortunately so pronounced in many cases that the drug is not continued, although other drugs may be combined with it to remove these unpleasant symptoms. Morphin by the needle does not affect the stomach, hence its use is more popular.

Where morphin acts as a pleasing sedative from the start, there is undoubtedly some peculiarity in the constitution favoring its use. Where it acts as

an irritant and stimulant, some repelling power exists, which may be finally overcome by the continuance of the drug. The fact of early sensitiveness to its use is very important in the study and treatment.

If the early use of morphin as a medicine produces poison symptoms, such as irritation, depression, and nausea, then irregular and pronounced narcotism, its physiologic effect is serious. If, on the other hand, its effect is that of narcotism, with slight exhilaration and pleasing anesthesia of the higher brain-centers, the possibility of its addiction and of morphin disease is very great. In the first case serious organic changes associated with other diseases will soon develop if morphin is used; while in the latter case the morphin may be continued for a long time without pronounced changes.

Any person who experiences relief from pain and discomfort by the use of morphin has received a pathologic impression, the intensity and permanency of which will depend on the strength and sensitiveness of the organism. If he has no inherited predisposition to seek relief from every pain and discomfort, and is not a neurotic by inheritance or errors of living, the impression will be less marked and soon effaced; but if he has a neurotic tendency, or a craving for relief from pain or discomfort, or suffers from nervous exhaustion, defective nutrition, and con-

trol, the impression will be more or less permanent, and the effects will not wear off at once. The repetition of the drug will constantly widen and deepen these pathologic defects. When the intervals between the use of the drug grow less and less, the changes will increase and intensify into a morbid craving. This is an indication of serious impairment both of the nutrition and control-centers of the brain.

The narcotism of morphin is a temporary suspension of brain forces, with defects of cell and nerve energy; degeneration and changes of both functional and organic activity follow. Morphinism is a form of insanity, and the use of the drug leads slowly or rapidly to disease of both the brain and nervous system. The constant narcotism of the higher brain-centers soon impairs their integrity and destroys their normal condition. When the craving for morphin becomes serious and imperative from the withdrawal, the indications are unmistakable of serious and possibly permanent impairment.

In a very large number of cases morphinism may be divided into three stages. While these stages are not always distinct and well marked, it is well to observe and to recognize these distinctions, which enable the physician to more carefully study the prognosis and treatment.

The first stage is that in which the drug is taken

for some specific purpose, such as colic, spasmodic pain, fluxes, and irritating states of the nervous system. The effects of the drug are often satisfactory, and the relief which follows is complete, with no unpleasant after-effects. The recurrence of these or of similar conditions at intervals is followed by the same pleasing results. Both the physician and the patient realize that morphin is a valuable remedy. Later, when any other discomforts or pains arise, the person turns to this source for relief.

It is but a step from its use for relief of physical pain to that for mental and psychic troubles. In insomnia its effects are often very pleasant; also in care and distress from worry and general exhaustion. In addition to this, there are states of mental exaltation and general physical satisfaction following its use. This is the first stage, and may last from a few weeks to several years, during which morphin may be considered only as an excellent remedy to be taken for pain and suffering, and never in more than one or two doses at a time. The thought of its use becoming an addiction and dependence upon it is not considered.

During this stage a positive conviction has been formed in the mind of the value, power, and usefulness of the drug as a remedy.

The second stage begins at a point where morphin is used for days and weeks for some specific physical

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derangement; then for imaginary pains, with the same satisfactory results. Later the increasing dependence upon this drug for the relief of all forms of suffering and pain leads to its continued use, until its abandonment becomes difficult and painful, and often causes much discomfort and distress. The mind during this second stage becomes profoundly convinced of its value. Even when the effort to discontinue it is followed by suffering, the impressions of its value still remain.

Then comes the third stage, in which morphin is used continuously and the attempt to give it up is abandoned because it is accompanied by so much discomfort and suffering. The second stage, like the first, may extend over a long period, but the third stage is unlimited except by treatment.

The belief of the patient in his ability to stop at will in the first and second stages, although continuing to the third, is somewhat shaken, and at times greatly doubted. The first stage is very common, and possibly might continue a lifetime, never changing into the second or third. In some instances morphin given in a dose beyond a certain point is followed by nausea and repulsion, and up to a certain stage smaller doses are followed by pleasant relief. The second stage is absent in many cases.

Morphin as a common remedy, taken for pains and aches, may suddenly, from some unknown cause,

develop into an incurable craze for its continuous use. Disease, injury, mental and physical shocks, are frequently followed by a sudden impetuous demand for morphin, and the patient will become a morphinist. Often in the early treatment of these maladies, alcohol, chloral, chloroform, or any of the common narcotics may take its place as a remedy with equal efficacy.

The second stage is practically the development of the disease where morphin is taken for days and weeks, then abandoned for some other drug or taken up again according to circumstances and conditions. Often morphin is used to relieve some condition of disease, and when taken for three or four weeks at a time, is abandoned with difficulty. Hence it is always a source of danger to use morphin for any length of time in neurotic cases, or to resort to it for temporary pains and discomforts.

The morphinomaniac who continually craves the drug has already passed the first and second stages of the disease. Usually morphin is taken at first for several days or weeks in small doses; then, after one or two attempts to abandon it, a mania develops for its continuous use.

The morphinist has usually had a long first stage of occasional use with long free intervals, taking it only on one or two occasions, then dropping it; finally using it at shorter intervals and for longer

times, until it becomes necessary to his comfort. Efforts to abandon it are temporarily successful, but relapses frequently occur.

The following cases are types of these classes, and are not uncommon:

Example 1.—An active business man first found relief from obstinate toothache by the use of morphin. Later he suffered from an injury which was painful, and by the advice and consent of the physician used morphin for two or three days, and recovered. A year later for an attack of the grip morphin was found to be effectual. Some time afterward he used morphin pills for an attack of colic. From this time morphin was a household remedy, used in every condition of pain and suffering. It was used for indigestion, neuralgias, colds, and other minor affections, several days at a time. Finally he used it several months for intermittent fever, and found it very difficult to give up. Later still, he claimed to have insomnia, for which morphin was given, and all attempts to abandon the drug increased the desire, and so he became a morphinist.

Example 2.—A business man who had for several years taken morphin pills at intervals for functional and other disturbances suddenly lost all his property. He was overwhelmed with grief and sorrow, and always went to bed suffering from depression, melancholia, and general debility. Suddenly he de-

veloped a mania for morphin, and for several weeks was in a state of continuous narcosis. The mania subsided, but he could not abandon the use of the drug. He was placed in an asylum and the drug was withdrawn, but he relapsed the moment he regained his liberty, and seemed possessed with the desire to use morphin at all times and under all circumstances. There were but two stages in this case. The last was morphinomania.

Example 3.—A woman in middle life, previously healthy, began to use morphin in moderation at the change of life. She has for the last ten years been using it at short intervals, giving it up readily without any particular pain or suffering. Then, for reasons real or imaginary, resuming it again, using from two to four grains a day. She became alarmed at the idea of becoming a morphinist and diminished the dose until it was finally given up altogether. The probabilities are that in the near future she will resume it, and be unable to give it up, and thus become permanently addicted.

These three examples indicate a large class of morphin-takers and their general history and progress. There is still another class, which are anomalies, but nevertheless are found in sufficient numbers to attract attention. They are persons who, after the morphin addiction of several years, suddenly become abstainers, giving credit for

their abstinence to the most insignificant cause, or boasting of the power of their will, which enabled them to stop. These persons make astonishing recoveries and seem to be exceptions to all rules and methods of treatment. In some instances powerful mental impressions are no doubt active as causes, driving out the morphin impulse and superseding it by some other dominant idea. In others the force of circumstances seems to be powerful enough to break up the morphin addiction.

An example of this class was that of a woman taking six grains of morphin daily, who became convinced that this addiction was an unpardonable sin. She went to bed and remained there for a week without drugs or treatment, and fully recovered.

In a second case a man taking five grains of morphin daily received a letter from a woman who had rejected his addresses some years before offering to marry him on a certain specified date. He abandoned the drug at once, and after lying in bed two days went about restored, was married, and did not use the drug for at least two years after. No further history was obtained.

A third example was that of a very miserly man who had used morphin for several years. He was convinced by his wife of the great expense of the drug and the peril to his property, and without any discomfort he gave it up and went about apparently as if it were no deprivation.

CHAPTER III

ETIOLOGY; INJURIES; SHOCKS; ETC.

Study of the Causes Reveals Only Physical Forces. Border-land Neuroses. Uniform Causation. Progress and Development. Only a Few of the Causes and Laws Which Govern Them are Known. First Group are the Neuroses from Inheritance. Diathesis Coming from Alcoholic, Syphilitic, Tuberculotic, and Hysterical Ancestors. Varieties and Conditions. One Class Use Morphin for Exhaustion; Another, for the Pain from Injury and Disease. Children Show These Defects. Morphinism a Psychosis Both Inherited and Acquired. Mental Defects and Characteristics. Atavism, Precocity, and Mental Instability Prominent. Other Causes are Starvation, Intoxication, Brain-strains, and Nervous Drains. Morphin Unpleasant at First. Morphinism from Injury. Examples. Autointoxications Often Causes. Surgical Operations. Injuries to the Cord. Etherization Predisposes to Use of Morphin. Danger from Morphin in Gynecologic Practice. Shock and Excitement Causes. Association with Alcohol.

ALL study of the etiology of morphinism should be made from a physical standpoint. No study of moral causes should be considered by the physician, for the reason that science has failed to point out dividing-lines and to indicate where so-called vice and disease join. The present knowledge of the physiology and psychology of the brain has indicated no causes other than physical in the development of morphinism.

The assumption that many of these border-land

neuroses begin by a wilful act is not sustained by any test of examination. Exact studies of the history and conditions of life and living which have preceded morphinism point out a distinct series of causes which are more or less exact and uniform in their progress and development. It is no accident or fortuitous combination of events which has developed the morphinist. The causes and conditions are as certain and fixed as those which govern the growth of a tree or the building-up of a plant. While it is not always possible to trace all of these conditions, we can see outlines which indicate their general trend, and thus be confident that further studies will clear up many of the mysteries of the disease.

Researches along this line are full of promise in indicating the operation of forces which, when known, can be changed or prevented. At present we can only point out some general facts and leave the wide ranges of the unknown to further study in the future. When a clinical study is made of a large number of these cases, they divide into certain groups.

The first of these groups may be termed the neurotics from inheritance. They are persons who have received from their parents certain defects of the brain and nervous system; also certain predispositions and tendencies which have culminated in morphinism. These inherited faults are most fre-

quently hypersensitiveness of the brain-centers with low resisting powers, indisposition and feebleness, and unwillingness to bear pain or suffering. Associated with this are imperative psychic degenerative tendencies to seek physical pleasure and to avoid all pain and discomfort. Often the central object in life is the gratification of every pleasurable impulse. The brain is dominated by these lower impulses, and no reasoning of future good can overcome the desire for present gratification.

Such persons inherit from their ancestors physical defects of body, lack of mental and muscular strength, disturbed nutritive functions, and many unknown conditions and tendencies to early exhaustion and disease. Often these neurotic tendencies are concealed. Externally, the person seems normal and well, fully equal to the average; but test and experience show irregularities of control, defective reasoning, feeble powers of restoration, and inability to bear the ordinary strains and drains of life. Defects of morals, defects of character, and defects of judgment are seen when exposed to any stress or temptation.

In a study of the morphinists who belong to this class, the question is sometimes difficult to determine how far these radical impairments have originated or are transmitted through the use of the drug. This inquiry leads one back to the character and habits

of the ancestors and the diseases from which they suffered. Here the facts are so numerous and complex that it is difficult to classify them, or to do more than to study them in a general way.

What has probably been transmitted is a neurotic diathesis or a special tendency to exhaustion from the slightest exciting causes. The vigor, power of endurance, and capacity of resistance are all below par. Along with this in many cases is a direct predisposition to find relief by external remedies, of which morphin and other narcotics are the most common means. This neurotic diathesis follows very largely from alcoholic, syphilitic, tuberculous, hysterical, and neurotic ancestors.

The first of these classes are actually poisoned cases who transmit defective cell and nerve energy to their descendants with greater certainty than that of any other quality. The tuberculous, hysterical, neurotic, and others of this class are always followed by degenerate offspring.

A great variety of conditions may neutralize, change, or divert the current of defects; or, for some unknown reason, these defects may be held in abeyance and lie dormant for a generation, and will then reappear. An entire generation from defective ancestors sometimes will not exhibit these tendencies, although when subjected to certain exciting causes they are roused into activity.

Probably one of the most prominent classes of ancestral defects which develop morphinism in the second generation is that of physical and nervous exhaustion. Parents who are worn out mentally and physically are examples. Thus, hard-working physicians, clergymen, active business men, lawyers, teachers, and others who have been engrossed in their business, and early become neurasthenic and cerebrasthenic, are frequently followed by children who become morphin-takers.

Another class, who have been idlers, gourmands, and pleasure-seekers, whose whole life has been a round of physical and sensual indulgences, dying early from some acute disease, are often followed by descendants who have the same neurotic tendencies and who seek relief in morphin.

A third class are invalids of the neurotic type who have suffered from injury to the nerve-centers, nutritional disorders, and local inflammations, and have children who early become morphin-takers. Many obscure histories of morphinists have been published, traceable to such ancestry, but there has been no special study of them.

Although disputed by some authorities, the question is practically settled that morphinists transmit their tendencies to their children. This is established from the records of many cases. The following is a good example;

An alcoholic father and a morphinist mother had five children. Soon after birth every child exhibited an extraordinary degree of irritation, restlessness, and continual crying. These were only quieted by opium. Three of these children died in infancy. The other two were given opium at intervals through childhood, and after puberty became drug-takers, one of them dying soon afterward; the other is choreic and hysteric.

Dr. Happel, of Trenton, Tenn., reports* several children born of morphinist mothers, who had defects of the heart, non-closure of the ductus arteriosus and foramen ovale, and a deficiency of the ventricular septum. These children were born cyanotic and early suffered from colic, were restless and fretful, and when given opium were relieved. He says: "My experience thoroughly satisfies me that when the mother uses morphin habitually, the child is born with some defect of the heart, a congenital heart disease; either there is non-closure of the ductus arteriosus, or the foramen ovale, and in some cases the interventricular septum, is deficient. I do not pretend to assert that the use of morphin is the sole cause of these defects, but that when morphin is used to excess, in the large majority of cases the deficiencies do exist.

"Generally the first intimation that you have of

* "Journal of Inebriety," July, 1895.

any defect in the development of the child is that, after becoming restless and fretful, a cyanotic condition supervenes. The nurse calls your attention to the fact that the child is 'blue.' The child may have been, and frequently is, born, as shown in the few histories given, apparently in fine condition. It rests well for the first twelve or twenty-four hours. It is reported to you as an unusually 'good child,' sleeps nearly all the time, does not want to be nursed, etc. On the second day, however, you are apt to be informed that the child is fretful, restless, colicky, and then, later on, that day or the next, that the child becomes blue at times. As a rule, this condition grows worse unless you suspect, or know, the cause of the trouble and begin the free use of opiates and stimulants. This condition is easily understood, and the need of the treatment suggested comprehended, if you bear in mind the fact that the child is born an opium-user. Its blood is, so to express it, saturated with the drug. The mother has lived on it, and the fetus has developed under all its baneful influences. To finish up and perfect the heart is the last work to be done, and the closure of the foramen ovale and other portions of the heart being left to be finished after the child has begun its separate existence, the supply of opiates being suddenly cut off, the equilibrium of the nervous system is destroyed and nature's finish-

ing work suspended. The closure of the foramen ovale could not be permitted as long as the child existed *in utero*, and now the work cannot be carried on, with the nervous system crying out for opium; hence the restlessness which induces irregularities of circulation, blueness, etc. If this cry of the nervous system can be quieted and the child nourished, nature may be, and sometimes is, able to complete her work. . . . Morphin becomes, 'me judice,' a disease transmissible by heredity almost to as great a degree as, and in the same way that, tuberculosis and such-like diseases are handed down. Not that the disease is itself transmitted, but a condition, a soil, a nidus, or whatever you may be pleased to call it, is handed down to the child, and some fortuitous circumstance develops the disease. The offspring of the victim to the morphin habit has a condition of the nervous system that when once subjected to some exciting cause develops the habit rapidly."

Other authors have mentioned morphinist children whose mothers used opium during the period of pregnancy. An example of this kind, although concealed, is illustrated in the following: A strong-minded, neurotic woman had five children, each one of which had a period of excessive irritability and sensitiveness during childhood, and grew up neurotic, choreic, and suffered from other nerve defects.

Later it was ascertained that the mother had used morphin secretly during the time of pregnancy with each child; then, after the period of lactation, gave up the drug. At the birth of the last child she could not give it up, and so continued it openly until her death.

An instance of the opium-taking of a father appearing in morphinism in the child bears on this point. A soldier who received in the Civil War some wound of the nerves of the arm became an opium-taker. He married and had two children. His addiction was unknown and concealed until his death. Both children became morphin-takers in early life. The daughter found morphin most fascinating soon after her first pregnancy. The son drank spirits, and then turned to morphin. Both children are now using the drug regularly.

It is impossible at present always to trace these transmitted defects, which seem to move in such endless complex procession; but it is certain that morphinism and opium-taking in the parents are followed in the children by positive predispositions and inherited tendencies to use the same drug. Whether the children become morphinists or use some other drug, there are innumerable evidences among them of imperfect growth, defective nutrition, and a tendency to irregular habits and modes of life and faulty reasonings that are only controlled or cured in a

few exceptional cases. The use of morphin has permanently impressed the cellular and nervous systems, so that it is almost impossible to transmit a normal organism from such ancestors.

Children of alcoholics, or of persons who use spirits moderately at meals, who pride themselves on their temperate use of spirits, are often very much astonished to find their children utterly devoid of power of control and of capacity to follow their parents in moderate drinking, while, on the contrary, they sometimes show morbid predispositions and incapacities of reason and control which very soon find relief in the use of morphin. Here the poison of alcohol, impairing and perverting the cell function and growth, lessens the capacity to bear pain and discomfort in the children.

Often these inherited neurotic disturbances are concealed, and do not appear prominently in every member of the family. Sometimes they pass on to the second generation; then, from some change following the strains of life, develop into other forms of nervous disease, of which morphinism is very common. The same causes which produced marked deterioration in the parents are often concentrated in the child, and more pronounced and almost irresistible. Such subjects become invalids early in life, suffering from defects of nutrition and toxic changes of the blood from the slightest cause.

Many of these cases appear to break down through changes of the circulatory system and acute degenerative conditions of the body. The ordinary stress and strain of life falls most heavily on the metabolic activities. Others with these predispositions show nervous failures, with low vitality and constant physiologic crises, and seek relief from any source.

It is now a well-recognized fact that the transmission of the defects of the parents, in predispositions to the children, is a very active cause in nearly all functional and organic diseases of the nervous system. Eminent authorities agree that a large proportion of all cases of inebriety, border-land insanities, paranoiacs, hysterics, inebriates, and dipsomaniacs, is due in a large measure to heredity. Morphinism is one of these psychoses. It comes from the same source and follows parallel lines of failure and decay. Parents, in these classes, are usually nerve-exhausted, neurotic persons, often overworked mentally and physically, and living under conditions of great mental and physical strain with defective environments. Often they are spirit- and drug-takers, and are frequently classed as paranoiacs, psychopaths, who live on the borders of insanity. Frequently they belong to the class of mental, moral, and physical bankrupts who are merely staying in the world, with little vital interest in its affairs. Children from such ancestry have often unusual sus-

ceptibility to pain, and are rapidly exhausted and depressed, always seeking relief and rest, the mind being in a continual hyperesthetic or anesthetic state.

Some representatives of this class are the nomadic tramps, restless, uneasy, always moving; or, in other circles, the wealthy idler, the globe-trotter, who is ever changing from place to place, never satisfied, but always looking and striving for something new and different. They soon become drug-takers, spirit-takers, and when morphin is found agreeable seldom abandon it. Fortunately, opium and its alkaloids are often repelling at first, and many neurotics of this class are far too weak to persevere in the use of any narcotic or drug for relief if it produces discomfort at the start. When spirits or drugs are taken, if the environment and conditions of life make the effects of the drug unpleasant, it is abandoned; but if the conditions and environment are favorable, the use of the drug is continued.

Many morphinists are seen among the intellectual class of persons, who have superior intellects, but lack endurance and continuity of purpose. Often such persons in early life are precocious, and are pushed forward by their parents until they become nervous bankrupts, and fall back upon spirits and drugs for relief from exhaustion. Such children are practically switched on the side-track to dissolution by

their parents. No matter what their education, surroundings, or occupation may be, they are defectives, and are seldom able to pass through life successfully. Should opium, spirits, or morphin be given, some inherited predisposition will be awakened which soon grows beyond control.

The defects of the brain and nervous system from parents of this class are transmitted, and it is often an easy task to predict from a history of the parents and their environment the direction and form of the neurotic degeneration of their children. While these defects may sometimes skip a generation, in the vast majority of cases they appear again, and often can be traced back through generations in the diathesis and different predispositions manifested.

When germ soils are present and the conditions are favorable, morphinism will develop and grow rapidly; but when the conditions are antagonized or repressed, it will be diminished, and may die out altogether. In almost every community there are numerous examples of these conditions. Thus where the father is an alcoholic or moderate drinker and the mother tubercular, the children will be born either unduly precocious or neurotic and anemic, and may become morphin or other drug habitués, and often die early.

A hysteric mother and a paranoiac father may have brilliant children, who, after a short, bright

career, fall into strange drug or spirit excesses and die. A prominent instance of this was that of an eccentric father and a hysteric mother who had four children. One became a brilliant lawyer, and died by morphin. The second was an impulsive reformer, who developed inebriety in middle life. The third was a banker, who proved a defaulter. The fourth disappeared, leaving a large family, probably dying in a foreign country.

Often children from neurotic ancestry do not develop these defects until middle and late life. Then they break up physically, morally, and mentally, in the most extraordinary way. Some of these persons with defective ancestors exhibit a high degree of nervous development, approaching the type of genius, starting far above the average, and then dropping down and disappearing in a very short time, to the astonishment of every one. Such persons not infrequently become morphin-takers or dipsomaniacs, and die from suicide or acute diseases.

Many families belong to this unstable neurotic class whose dissolution is apparent in inebriety, morphinism, insanity, and different grades of mental and moral pauperism. They seem to inherit vacillating mentality with a special tendency to exhaustion and dissolution from the slightest causes. It is this condition which finds most pleasing relief from

the narcotism of morphin. Here it is not used for the mental effects or exalted hallucinatory states, but to steady and control the nervous organization and give the rest and peace which are constantly sought for by the normal man.

From a clinical point of view, it is rare to find cases of chorea, hysteria, megrim, or any form of inebriety, including opium-taking, in which there is not traceable some inherited predisposition. Many of the ancestors of persons suffering from these diseases may not have possessed markedly nervous temperaments, but by reason of occupation, surroundings, and neglect of hygienic living, have developed neuroses which are transmitted to their children. Thus, overwork, underwork, nutrient excesses, and neurotic strains are active causes which entail upon the next generation defects that find relief in spirit- and drug-taking. The children of such parents often find in morphin the first pleasurable sensations and relief from discomfort and pain. This drug seems to put them in a normal condition with a positive sense of physical satisfaction; life is full of zest; the mental and physical vigor seems perfect. The sense of strength is a delusion, to maintain which larger doses are required, which in itself is a significant warning.

Next to this diathesis or inherited predisposing cause there is a vast realm of acquired causes, which

may be described as brain and nerve injuries, cell and tissue starvation, autointoxications, brain strains, and drains of nervous force. Persons suffering from these conditions are always seeking relief, and morphin often answers this purpose.

When a single dose temporarily restores the disturbed equilibrium and brings ease and comfort, there is unmistakable evidence of derangement of the brain-centers, either inherited or acquired. If the effects of opium were uniform in all cases, there would soon be an enormous army of opium-takers; but, fortunately, only a limited number find relief from this source. It would seem that this minority is rapidly increasing; at all events, it is becoming more and more apparent.

Not infrequently in many persons the effect of morphin or opium is very unpleasant at first; the narcotic action is depressing and nauseating, and a marked irritation follows, which continues for some time after the drug has been used. Such persons rarely become habitués, and seem to possess some repelling power which prevents them from using it again.

A few cases have been noted in which the poisonous effect of morphin was with difficulty overcome. In such cases a very small dose was used. Cases of this character have occurred in the police-station where inebriates were treated. To lessen delirium

and excitement morphin has been given, and after a short period of emesis, narcotism and death followed. The dose having been very small, death was ascribed to some other cause. In reality it was the hypersensitiveness of the system to the effects of morphin and morphin-poisoning.

Persons who have suffered from sunstroke or heat prostration, after the use of a small dose of morphin are more susceptible to an addiction. Whether these poison-states were due to idiosyncrasies or conditions acquired from alcohol, to the effects of heat, or to chronic states of nutrition and autointoxication, it is difficult to determine.

In a certain number of cases an intense aversion follows the use of morphin. A feeling of dread and pressure over the heart, suggesting heart failure, creates intense alarm in the mind, which is never overcome. Persons having once experienced this, seem to possess an extraordinary hypersensitiveness to morphin. Even when it is disguised its effects are recognized, and often cause serious results. Undoubtedly in some instances this is psychic. In others it is physical, and dependent upon some peculiar condition of the nerve-centers.

Some children show this extraordinary sensitiveness to opium and its preparations. They vomit and suffer from chills and excessive perspiration, with prostration, when it is given. In other cases

extreme irritant effects are not manifest, but profound narcotism follows its use, lasting a long time and ending in general derangement of the brain and nervous system. The system seemingly is overwhelmed by this drug, and the sensory and motor centers receive the full effects of the narcotism.

An example of sensitiveness is that of an active business man who for insomnia of temporary duration was given an eighth of a grain of morphin. The narcotism lasted one day, most of the time profound, and was followed by great muscular and mental depression. Later, when a small dose of opium was given, the effects were equally marked and long-continued. In another case a man suffering from colic was given a quarter of a grain of morphin. He slept two days, most of the time in a condition of stupor from which it was difficult to arouse him. These cases are not common, but are likely to occur unexpectedly at any time.

Often alcoholic inebriates show an extreme sensitiveness to the effects of morphin when given in small doses, and when quantities of spirits are given to break up the drug impression, the danger to the patient is increased. Such cases are found dead on the street or at home, and the causes are difficult to ascertain.

There is another quite large class of neurotics who find the first effect of opium or morphin depressing,

and often associated with emesis. This passes off, and a pleasing narcotism follows. An example of this kind was a morphinist who had to take brandy before the use of morphin to prevent the nausea.

Other persons take extraordinary precautions to avoid the first effects of morphin, by lying in bed, placing compresses over their abdomen, or using irritants to the feet until the narcotic action begins. A certain number of cases have, by persisting in the use of morphin, overcome these early irritant effects and secured a degree of toleration which prevents the emesis, irritation, and discomfort.

In other cases this repelling power continues through a whole lifetime, and the first effect of each dose of morphin is some obscure shock, manifest in paleness, depression, and emesis if the stomach is actively at work. This lasts from a few moments to an hour; then the pleasing narcotism seems to restore the equilibrium, and quietness and sleep follow.

In a certain number of neurotics there is intense mental repugnance to the demand for morphin, and a conflict between the will and the morbid impulses takes place on every occasion of its use. This resembles the alcoholic, who often has extreme repugnance to the taste and effects of alcohol, but who is impelled by a morbid impulse to overcome this

antagonism. These cases contrast very strongly with those in which the first effect of morphin is pleasing and tranquilizing, and indicate a certain abnormal condition which is favorable to its narcotic action.

The history of a certain number of morphinists points to brain and nerve injuries as the starting-point of their addiction. In these cases, diseases, shocks, and mental perturbations and exhaustions, with lowering of the vital forces, have damaged the functional and organic activities, creating a strong tendency to seek relief in narcotism. Examples like the following are common:

An active, temperate business man suddenly lost all his property, and as a result suffered from some obscure condition of brain inflammation. He was treated for delirium, prostration, and great mental excitement for several weeks; then recovered. Later, he began to use morphin, and finally became a morphinist. It is difficult to tell how and why morphin was first used—whether from a doctor's prescription or by an accidental discovery of its soothing effects.

Another case is that of a man struck on the head and made unconscious, who, after recovery, was excessively nervous and insomniac, and who in some unknown way became a morphinist.

Many veterans of the Civil War became morphinists

to relieve the pain and suffering following injuries received in the service, and the addiction is often concealed to prevent the possibility of imperiling their application for a pension. The theory obtains that morphin-taking is a wilful vice and the disabilities from its use should not be recognized by the Pension Bureau. In Prussia both alcohol and opium inebriety are treated as diseases when occurring in the army or civil service, or following a period of service, and receive the same consideration as if they were physical injuries. The sufferings and hardships growing out of the perils of war often react in illness, nerve and brain instability, and feebleness, and the use of morphin is a symptom of damage from this source which should be recognized as its natural entailment and sequel by the Pension Bureau.

Many persons who were in active service in the Civil War came out in apparent health, not having received any injury or been ill. While they suffered from the usual strains and privations and exhaustion incident to the march and battle-field, for years afterward there seemed to be no evidence of injury in their appearance and health. Then, from some very insignificant causes, they suddenly became invalids and morphinists. Evidently there was some causative relation between the exhaustion and sufferings of army life and the sudden development of morphinism. Some profound impairment

of the nerve-centers existed which was covered up until middle life; then appeared with the decline of the bodily vigor. This is often manifest in the neurotic and nutrient disturbances which find most perfect relief from the narcotism of morphin. The following are examples:

An officer who served for three years in the Civil War was discharged apparently in good health. He had been a prisoner for some months, and also suffered from the usual deprivations and excitements of the severe campaigns. He became a teacher, and lived a quiet life for fifteen years; then suddenly, without any special cause, was intensely nervous and insomniac, and used morphin for relief. From this time he continued its use both secretly and openly, degenerating into an extremely chronic state, finally taking spirits and cocain and other drugs on all occasions. Deserted by his friends, he died in a pauper hospital.

The second example is that of a private who served through two years of very active campaigning, and was discharged as healthy and well. He was in many battles and suffered from continuous excitement and exposure, but was never ill nor incapacitated for duty. He studied and became a physician, and was a strong, temperate man. Finally he was made superintendent of an insane asylum. Twenty years after the discharge from the army he suddenly

began to drink spirits to intoxication. He gave no reason, and there seemed to be no explanation for its use. Later, he gave up spirits for morphin and retired to private practice, refusing all attempts at cure, and finally died a morphin imbecile.

These are not unusual cases. They may be ushered in by an attack of rheumatism or obscure and painful neuroses, which sooner or later find relief from narcotic drugs. In some instances the relation between the strains of army life and this strange craving for narcotics is clear and traceable; in others it is obscure. The sudden appearance of exhaustion and collapse of vigor and power of resistance, with dominance of the impulse for narcotics and relief, point out clearly some damage and impairment of the brain-centers.

A still larger number of cases are noted who have been injured by heat and sunstroke, then recovered, and later became morphinists. Some obscure brain and nerve injury has preceded the addiction. In some instances morphin was used as a remedy under the care of a physician. In others it was taken up surreptitiously, and was the direct result of physical injury and its consequent weakness. It is probable that in these cases the narcotism from morphin produced the first pleasing relief from pain and discomfort which they had ever experienced.

Recently some cases have been noted where the

correction of astigmatic states and irregularities of the eye have been followed by recovery from the morphin addiction. In all probability the irritation and exhaustion due to the eye-strain provoked the use of morphin, and when this was removed the morphin was distasteful and could be abandoned readily.

There is another class of causes traceable in a study of morphinism which are evidently due to cell and tissue starvation. It is apparent from the history that anemia, lowered vitality, and inefficient nourishment have preceded the use of morphin; also in some instances in convalescent states following protracted fevers or overwork its use has begun. Thus, a man convalescing from pneumonia or typhoid fever, who is in a state of semi-starvation, and who suffers from insomnia and extreme depression, finds relief and comfort from small doses of morphin. The effect is so pronounced that its use is continued.

Persons who are burdened with cares and responsibilities and are ill nourished find in morphin the same solace and freedom from all their pains and aches.

Early autointoxications are clearly causes which produce disordered appetites, headaches, brain fatigue, fever, and states of irritability and instability for which morphin is often a relief. There is, no doubt, a great variety of conditions

dating from these self-poisonings which produce disturbances in the system that morphin most effectually covers up, creating the semblance of cure, while in reality it increases the very condition it is supposed to relieve. After a time the demand for morphin is additional evidence of the central degeneration.

This great army of functionally disturbed invalids, whose pains and aches and symptoms are legion, all furnish congenial soils for the growth of the opium addiction. They are uniformly anemic and hyperesthetic, and suffer from all degrees of pains and discomforts. The brain is neurasthenic and neuralgic; fatigue congestions and derangements are present, with organic as well as functional changes.

A prominent author* has described this class as follows: "They are the physical and mental misers, or persons suffering from all imaginative degrees of distress and poverty, neglecting themselves, and subject to complex delusions. They are paranoiacs and dyspeptics and general neurotics. There is always present cell and tissue starvation. Poisonous waste-products are continually forming in the system. There is deranged assimilation and elimination, and the nerve-centers are often overwhelmed by chemical irritants and toxins."

* Hughes: "Alienist and Neurologist," 1900.

These persons range all the way from the most intellectual down to the very poor and ignorant, and include a large number of the border-land victims who live both mentally and physically on the frontiers of sanity and insanity. There are nutrient impairment, nerve defects, brain exhaustion, organic and functional degenerations. Opium or one of its alkaloids comes as a revelation, covering up the protests of the defective cells and irritated nerves. The original damage is concentrated and intensified along new and unexpected lines.

A certain number of cases have been traced to the exhaustion incident to age and breaking up of the brain and nervous systems, especially in men and women who have been very active or have been subjected to great changes in their lives. The change of life in women is often followed by physical, psychic, and prolonged functional disturbances which crave relief. Men who have credulous faith in the power of drugs to relieve and restore the body, and who believe in the old adage that nature has provided means for the relief of all pain and suffering, are also predisposed to become morphinists. Such persons readily become addicted, and for a time believe they have found the panacea of their dreams.

A few instances have been mentioned of general paresis being preceded by morphinism. In these

cases it is difficult to determine which was the original disease. Morphinism apparently started from neuralgia and insomnia, and after a few years' use of the drug well-marked symptoms of paresis appeared. The early neuralgias may have been symptoms of paresis which were concealed by the morphin, and possibly the paresis was retarded in some degree by the constant narcotism. In two cases of this character the use of morphin was more impulsive, and the person seemed dependent upon it, and became maniacal when it was removed. There are some reasons for believing that these symptoms were due to the degeneration from paresis.

An example illustrating this class of cases was that of a lawyer, aged forty-one. He was an active, temperate man, having charge of a large estate requiring great care and responsibility. Suddenly he suffered from nervousness and insomnia, and began to use morphin, and was improved. During the next five years he tried to give up the drug, but became delirious when the amount was reduced. He had delusions of poverty and sudden death, but when the morphin was increased these passed away. Finally the morphin was withdrawn in an institution, and, on recovery, well-marked symptoms of paresis appeared. He began the use of morphin again, and lived two years, dying from pneumonia. The paresis had become prominent, and, although

masked by the narcosis of morphin, seemed to be accelerated. In all probability the paresis began with the first symptoms of nervousness and insomnia, and may have been retarded at first, but afterward increased, by the effect of the morphin.

In a certain number of cases morphin has been given for neuralgic spasms of the stomach. Later it was found that these pain spasms were the gastric crises of ataxias. Morphin addiction followed rapidly, and the drug could not be withdrawn without extreme suffering. Often the ataxias are not recognized in the early stages. In a patient under the author's care the withdrawal of morphin revealed the real condition, with the paroxysmal pain and other symptoms which had been observed before. The pains were so intense that he soon relapsed, and continued the use of the morphin until death some years later. A number of ataxics are morphinists because of these gastric pains at first, and they rarely ever abandon the drug. Nothing else gives such relief. Death follows from both the drug and the degeneration of the cord.

One author has mentioned malaria as a very active cause, and has cited a number of cases to sustain his assertion. There can be no doubt that the sequels of malaria have merged into this addiction. In all probability certain special favoring causes have predisposed to the addiction, which

may have existed before the malaria came on. The neuralgias following malaria and other disturbed conditions are not always relieved by opium or its alkaloids, hence the addiction therefrom is not very common. The effects following the use of morphin in organic diseases of the stomach, liver, or other parts differ frequently from those of a malarial origin in which morphin is taken as a remedy. Very rarely does any irritant effect follow the use of morphin in these organic cases.

How far the narcotism of morphin arrests the acute diseases is difficult to determine. In some instances this result is very marked; in others, the progress of the disease is accelerated. Some authors have urged the value of opium and its alkaloids in different forms of cancer associated with great pain, and have asserted that the progress of the disease was diminished and life prolonged by the use of the drug. It is probable in these cases that the removal of pain is the most influential factor. Where the pain centers are hyperesthetic, the use of opium will have some retarding effect on the progress of the disease. Where tumors and organic growths in the body are not painful, the retarding effect of morphin will not be noticed.

Recently morphinism has been traced to the pain following surgical operations. In these cases the drug is given in small doses after operations for a

considerable time, and is followed by an addiction. If the person has used morphin or alcohol before the operation, there is in many instances a peculiar susceptibility, which appears in the very pleasing effects when it is given afterward. In several instances its early use is concealed and unsuspected, but it becomes apparent after the operation. A number of cases of appendicitis were found after the operation to be morphinists; severe complications have followed. In some instances where morphin has been used surreptitiously, the surgeon, not knowing how to account for the after-symptoms, has looked upon the case as one of great gravity.

In a case of amputation of the lower extremities for railroad injury a peculiar, exhausting delirium appeared the second day, and was not diagnosed until the interne gave an injection of morphin. It was then ascertained that the person was a secret morphin-taker. All bad symptoms subsided and recovery followed after the drug was again given regularly.

It may be stated as a general rule that both the physical and psychic shocks which the brain and nervous system receive from a surgical operation and from the anesthesia of chloroform and ether often derange the nerve stability, increasing the susceptibility to pain and making the use of morphin dangerous if given afterward. Of course, much depends upon the person. When they are neuras-

thenic or worn out from disease, the susceptibility is greater. In operations in which a large amount of blood has been lost, or where large nerve-trunks are cut across and wide surfaces are exposed, undoubtedly the susceptibility to the addiction of morphin and other narcotics is increased. Instances are reported where, after a severe surgical operation and prolonged etherization, morphin addiction appeared. In all probability the addiction began soon after the operation, and was concealed until it became chronic.

A healthy business man of middle life sustained a severe fracture of the femur. Some months after a surgical operation the fractured ends were removed under the influence of ether. In a year his conduct and manner so changed that mental impairment was suspected. Later it was found to be due to morphin addiction, which he was powerless to resist, but which he showed great ingenuity in efforts to conceal. In another case, after an operation for hemorrhoids the person recovered, and soon after began to use a morphin suppository for some pain and discomfort. From that time he became a morphinist.

In these cases there was present a hyperesthetic sensitiveness to pain, with little or no resisting power. In a certain number of instances the effect of prolonged anesthesia gives a great susceptibility to morphin.

Some cases are reported of morphinism dating from etherization following tetanoid spasms. Quite a number of cases have followed the free use of morphin in prolonged and painful labors, especially where it has been given after the labor for a time.

It has been stated with great emphasis that all operations which profoundly impress the nervous centers, lowering the normal vigor of the body, increase the sensitiveness to pain and diminish nerve coordination and power of resistance, leaving the person very susceptible to morphin.

Within a few years many authorities have pointed out the danger of morphinism in women who come under treatment for gynecologic disorders. The impulse to secure relief from pain and to induce sleep is so imperative that morphin is taken without regard to its perils. The patient is both physiologically and psychologically impressed with the intense satisfaction of rapid relief, and ever after this impression becomes dominant in pain and suffering. All control of the will, feelings, and emotions is overcome by it. The desire to escape pain and suffering becomes in many cases a mania.

Capriciousness of mind, irritability, selfishness, restlessness, and excitability are the natural characteristics of many women, who quickly become morphinists, especially if under treatment for disorders of the generative organs. Such persons

suffer from uterine troubles and ovarian troubles, and disturbances of all types and grades, with intense depression and exhaustion of the nervous system.

Hysteria, neurasthenia, neuralgia, cephalalgia, ovarian crises, dysmenorrhea, spinal neuropathies, neuromimesis, are the correlated conditions, often associated with sexual disturbances, forming fertile soil for the production and growth of morphinism. Many instances are noted in which the use of morphin first prescribed by a physician has been continued secretly. The results were so pleasurable that the tendency often arises to recommend its use to others, and in this way the addiction has become contagious, spreading in some instances throughout the community. Women are more susceptible than men if there is a similar neurosis.

Recently a great reaction has been noticed in the use of opium and its alkaloids in surgical cases. Many leading surgeons condemn the use of morphin in certain capital operations. It is authoritatively asserted that the statement so often made to students, that their mission is to relieve pain and suffering, has been fraught with the most disastrous consequences. Dr. Joseph Price* writes as follows on this subject:

"I am satisfied that the use of opium in some

* "Journal of the American Medical Association," July, 1900.

form, either by injection, suppository, or solution, should be held largely responsible for much of the high mortality in abdominal surgery. I have watched the work of others and compared the mortality of the operators who use it with those who reject it, and I find a large difference in the mortality lists. Those who do not use it have the lowest mortality. The use and abuse of it before painful troubles are removed obscures symptoms, impairs nutrition, and greatly complicates the management of the patient. Without opiates, you have a certain cooperation of the patient, and the pain signals are limited and appreciable for a short time following operations. Many uncomfortable and threatening conditions are wholly absent when opium is not given. In addition to this, there is the strong probability of contracting an addiction, and the continuous use of opium after."

The doctor illustrates his views in the record of four cases where general peritonitis existed. The operation and after-treatment were without opium, and the results were most satisfactory. There is evidently just ground for fears of the danger of opium in these cases.

Dr. Macnaughton Jones* has called attention to the special danger coming from the use of morphin in gynecologic practice. He has pointed out cer-

* "Journal of Inebriety," July, 1895.

tain classes of neurotic women noted for capriciousness, irritability, and restless excitability, to whom the effects of morphin are a panacea which they do not give up when once they have experienced its pleasure. Such persons find relief from morphin, no matter how administered, and soon are unable to do without it. Dr. Jones believes that most of the morphinomaniacs among women will be found to have had, prior to the addiction, hysteria, neurasthenia, neuralgia, ovarian crises, dysmenorrhea, spinal neurosis, and neuromimesis, or some of the great variety of correlated conditions. He thinks that to give it in cases of pregnancy to lessen some peculiar pain or condition is to produce a tendency to abortion and lower the vitality of the embryo. When given for operations in cases of this kind, it not only masks the dangerous symptoms, but increases them and adds new perils to the present condition.

Dr. Jones is certain that women are more susceptible to morphin than men, and its sedative effects are more pleasing and of longer duration. This has been also the experience in this country. Morphin addiction among women, while growing more and more common, does not differ from that noticed in men. The treatment may be somewhat more complicated, but it is substantially the same. There is clearly a special danger in using morphin in diseases and operations on women, not only in the addiction

which may follow, but the complicated neuroses which are likely to follow its use.

Dr. Jones is clear and emphatic in his denunciations of its employment after abdominal operations, and believes that its value is limited to a few cases of organic diseases associated with extreme pain. Even here its use may be injudicious. There is probably more clandestine use of morphin among women, but concealment cannot be continued long; its effects are apparent in other symptoms. Dr. Jones thus sums up his conclusions:

"First, the risk attending the use of morphin in the treatment of the affections of the pelvic organs is not sufficiently recognized.

"Second, the influence of temperament should be carefully considered in its administration, hysterical and so-called neurotic temperaments being more susceptible and more likely to be followed by dangerous effects of the drug.

"Third, in such cases morphin should only be used as a *dernier ressort*, and rarely, if ever, for the relief of what may be said to be subjective pain. This is true both of cases of ovarian neuralgia and reflex ovarian pains, and also of spinal pains and reflex disorders of the generative organs or an insomnia rising from the same cause.

"Fourth, its use is particularly dangerous in the climacteric.

"Fifth, the risk of morphin intoxication and morphinism should be avoided as far as possible; first, by the medical man himself under exceptional circumstances and conditions; second, by limiting the quantity of solution required for the time and place, preventing its being repeated except under special orders; third, by not giving into the patient's hands the needle or a prescription for morphin; fourth, all friends and patients themselves should be warned against the use of this drug except under the advice of physicians. As a rule, patients do better without morphin after abdominal operations."

Dr. Jones has shown that there is always a certain tendency in morphin to accumulate in the liver. The experiments of Rogers indicate an interaction between the hepatic glycogen and the morphin, the glycogen having the property of arresting the alkaloid, which Regnier believes to explain the occurrence of glycosuria in the more advanced morphinomaniacs. It is evident that if a large quantity of morphin is taken daily, it is not used in the system, from the fact that it is found in the urine and can be cut off without the production of any particular distress.

Among the most interesting of the obscure causes of morphinism are the psychic injuries. These are very largely mental shocks from sudden, violent emotional perturbations and mental strains. The

most common causes are sudden loss of property or position, or death of friends or relatives, entailing on the mind extreme depression and profound melancholia. In other cases elation, joy, and sudden prosperity seemingly have a like effect in breaking up the stability of the nerve-centers. Sudden fright, dread, and fear of death are not uncommon causes. The wreck of a railroad train or the perils of a threatened shipwreck, where the mind is wrought up to a great intensity, or profound disappointment at some unlooked-for event, are all common causes that have a very pronounced impression upon the organism.

Injuries of this character are sooner or later followed by changes of the brain and nerve-cell, manifest in slight and obscure disturbances at first, but which after a time grow to great proportions and become marked deviations from previous health lines. The same low resisting power to pain in the sensory centers, dread of suffering, low vitality, and desire for relief are marked in most cases. The remark is often made among thoughtful men that from such and such a time, referring to some psychic shock or emotional disturbance, they never have been the same; that they are conscious of being weakened and of having less nerve and force from that time. This is only a consciousness of injury which all persons do not experience. When such a

man is given morphin and the effects are pleasing, it is a revelation to him of the possibility of escape, and very often is the beginning of an addiction which he is unable to resist.

An example of this class was that of a strong, vigorous man who had an encounter with a burglar in his house. He was shot at and expected to be killed, but escaped. From this time he was greatly agitated from sounds and noises at night, was insomniac, and his mind was filled with dread of similar encounters. The family physician gave morphin, and from this time he became a morphinist.

Another man, equally healthy and well, became profoundly excited over the burning of his mill. Although the loss was insignificant, it made a profound impression on his nervous system. He could not explain it, but was nervous and excited, dreading fire and accident. After a time he became an invalid and drug-taker, and soon found a morphin prescription most efficacious, and became a victim.

In another case a man in previous good health suffered from profound depression and disappointment at the breaking of a marriage engagement. He had an attack of acute rheumatism, which quickly ended in morphinism.

Many cases are noted where these psychic sufferers find relief in the use of spirits. When these are taken

in excess, morphin is given to lessen the violence of the symptoms. The spirits are then abandoned and morphin taken up. The pathologic condition is no doubt a profound exhaustion of the cells and their function, with defective nutrition and diminished power of repair. Following this, pain, discomfort, and unrest appear, which become more and more unbearable. Then come drugs and narcotics, which cover up the pain and bring a sense of relief that is grateful.

The same condition probably follows the continued use of alcohol in any form. The nerve and sensory centers become deranged, not only by defective nutrition, but by the presence of poison elements which enfeeble the power of repair and capacity for endurance. These symptoms may be temporarily concealed by the use of spirits, but will gradually increase until permanent changes follow; then morphin is used, which still further obscures and destroys the danger-signals of pain and distress. The removal of alcohol gives some idea of the damage done after a period of morphin-taking followed by abstinence; the aggravated symptoms point unmistakably to a serious derangement. Morphinism follows most naturally from alcoholism, and if a period of alcoholic addiction is ascertained in the history, the gravity of the case can hardly be overestimated.

CHAPTER IV

SYMPTOMATOLOGY; PECULIARITIES; PROGNOSIS AND TERMINATION

First Symptoms. Psychologic Action. Stimulation and Irritation. Unconsciousness of Its Effects. Efforts to Conceal Its Use. Delusions and Illusions. Long-continued Concealed Use. Appearance of the Eyes. Emotional Disturbances. Stolidity and Nervousness. Appetite and Nutrition. Bowels. Mental Symptoms. Changes of Character, Habits, and Mental Activity. Heart Changes. Mental Instability and Feebleness. Delusions of Infidelity Characteristic. Never a Leader, but Always a Critic. Progress Uniform in Many Cases. Unexpected Death Common. The Higher Brain Suffers Most. Changes of Symptoms. Associated Drugs. Insanity Symptoms. Disability to Use Other Drugs to Conceal Their Real Condition. Morbid Fears and Manias.

The usual effect of morphin taken for the purpose of relieving pain is first that of dulness of the senses, and then obliteration of pain, followed by serenity, comfort, and rest. Later a tendency to sleep, and, after a short period of unconsciousness, a quiet wakeful season follows. Later the head begins to ache, and nausea and depression come on. After a few doses the nausea and irritation disappear, and only general heaviness and slight headache follow.

When the pain is psychic, the relief from morphin is often so intense as to produce a physiologic im-

pression on the nervous system; and used the first time, it is a revelation and new conception to the mind. When the suffering is physical, the quietness and rest which follow make an equally strong impression, opening up a new world of peace and comfort.

This psychologic impression is more or less permanent, and seems to point out an ideal toward which the brain and nervous system turn with longing. When the pain and discomfort are relieved, often irritation and vomiting follow; then this first impression is greatly lessened.

The poisonous action of opium and its alkaloids for some reason is more prominent in the irritation than it is in the narcotism which follows. The irritation is the practical stimulant effect or apparent increase of vigor, both physical and mental, ending in narcotism.

Clinically there are two stages: one of stimulation and irritation, the other of narcotism and stupor. The first stage comes from small doses, and is very prominent in some persons; the second requires larger doses or is the result of the cumulative action of small doses. In each case there is either susceptibility or intolerance to its effects. These are peculiarities which often appear very early in the history of the case.

When the effects of morphin are sharp, distinct,

and pleasing, there is susceptibility to it; but when irritation, excitement, depression, and stupor follow, with much headache, there is intolerance. The repelling stage or stage of intolerance not infrequently passes away, and then morphin becomes attractive and pleasing in its effects. The first stage may be marked by instant relief of pain and suffering, then later be followed by headache, depression, and poison symptoms.

One who in states of exhaustion uses morphin as a stimulant, finds after a few doses loss of appetite, headache, and general dulness. The exhilaration which is sought reacts into depression. If morphin is taken as an experiment by some one who has read of its delirious effects, many of the symptoms may be anticipated and are purely subjective. These will grow less and less from the repetition of the drug, and finally the first impression will be obliterated.

Innumerable persons after reading De Quincey have sought to obtain the same results from the use of opium, but failed. There was in De Quincey's case an exaltation of the imagination approaching a state of delirium, which could seldom be repeated in other persons under similar conditions.

Morphin dreams and illusions are so complex and variable that they cannot be described with any accuracy. The early stage of exhilaration may be

evanescent or prolonged, according to some unknown condition; but when morphin has become a necessity, then different symptoms follow.

Some writers have divided the mental symptoms of morphinism into three stages: The first is that of unconsciousness of danger and extreme confidence in its value for all pains and aches and discomforts. There is little caution in this first stage, except to use it with other drugs. The increasing stupor and somnolence create a desire to overcome these effects.

This is followed by the second stage, in which extreme caution is used to cover up the use of the drug and to explain unusual symptoms by other causes. This secrecy grows until it becomes a dominant idea, the patient taxing his ingenuity and skill to deceive and change the appearance of everything. The erratic conduct, foolish conversation, and puzzling delusional states are explained by most ingenious theories, urged by cultured persons, and the real causes are denied.

Later a third condition of pronounced delusional egotism follows, in which the use of morphin is acknowledged, with boasts of immunity from danger and with plausible explanations of its value. The patient defends this condition and minimizes the actual amount used, making assertions of being more than ever competent to determine the possibilities of danger. When morphin has been taken by the

needle at first, these delusional impressions of the absence of danger or possible injury increase with great rapidity.

At first it is used irregularly and at long intervals, seemingly dependent on some physical states of stress, strain, or functional disturbance; then it is taken more frequently; and, finally, conditions of nervous anemia and prostration call for it regularly. A sense of danger may appear, but with this come delusions of ability to abstain any moment without suffering or pain.

Later the danger sense develops, and the general weakness and mental disturbance at times increase the alarm and desire to give up the drug. After a great effort, with some suffering, this is accomplished in part by the substitution of spirits or other drugs. Later the effects of these are followed by more debility and exhaustion, and morphin is resumed.

This alternation from one drug to another may go on for some time. Finally some form of morphin or opium is permanently adopted. Often this may be associated with spirits or beer. In some instances morphin will be abandoned voluntarily and without help; after a time it is taken up again, either openly or secretly, and often without any explainable cause.

It has been a matter of surprise to all students of

these cases to find persons who for years have been using small doses of morphin secretly without displaying any of the common symptoms. Such persons are usually in the higher walks of life, in professions or in business; many are women of the wealthier classes who have nothing to do. Most of these are unsuspected, although to their intimate friends, increasing eccentricities of thought and conduct and diminished brain power, also secrecy in conduct of life, are symptoms of some change.

A man at the head of a large corporation, whose character and conduct had been above all suspicion, died suddenly from what was supposed to be heart failure. An examination showed his body covered with scars from morphin addiction by the use of the needle. His will betrayed his mental condition by the eccentricities of its provisions.

Another example was that of a prominent clergyman, who, after his fiftieth year of age, became an invalid, and was treated by many physicians without success. After traveling for some time, he died suddenly in a hotel. On his body were found needle marks of morphin addiction which had existed for a long time.

A business man who had been considered as having incipient dementia was taken to an asylum, and his secret morphinism discovered. He was treated and recovered. Four years later he began to decline in

the same way. Repeated efforts failed to detect his use of morphin. He continued five years in active business, growing more feeble, all the time denying all use of morphin; then he died. It was found that he had used both morphin and opium during all this time.

A case which attracted much attention was that of a widow, who at forty suffered from shock by railroad accident, and was given morphin by her physician for the insomnia and pain. She recovered and was considered well, and was active in managing her affairs up to death, at sixty-two years of age. Her will was contested and it was shown that she was a secret morphinist, having used it from the time that she was injured, twenty-two years before. This was unknown to her friends and family, and except some slight changes in her judgment and manner, which were thought to be due to age, nothing was noticed.

These and many other cases of like character indicate the possibility of the moderate use of morphin for a long time without any manifested symptoms.

The physical effects of morphinism vary widely with the persons and their occupations. Probably the most prominent are anemia, irregularity of thought and purpose, with spasmodic muscular efforts, rapid exhaustion, and want of endurance.

Some authors have laid great stress upon the changes observed in the eye. Beyond that of a contracted pupil, there is wide divergence of symptoms here. In the later stages of morphinism the impaired vision gives a certain fixity to the gaze and a prolonged staring expression that is abnormal. Morphinists who are making great efforts to conceal their addiction frequently show a furtive look in the eye, resembling that of one guilty of some crime.

This prolonged gaze and the furtive movements of the eyes are very significant. While they may not be pathognomonic of the secret use of morphin, they indicate some condition of the brain that is abnormal. These two conditions of the eye, prolonged staring and furtive oscillations, are very common in morphin cases.

Some authors assert that a watery eye, meaning an eye suffused with tears and unsteady and changeable, is significant of drug-taking. The contracted pupil is an almost constant sign, although many morphinists use atropin with the morphin to dilate the pupil. The general marasmic appearance of the face is also another very significant sign. The thin nostrils, bloodless lips, pale ears, and clear pearly skin are all associate symptoms.

It is said that a morphinist lacks emotional expression. He is unable to smile or show interest in a subject by the play of facial muscles. This is

probably true in advanced cases in which there is a diminished nerve activity almost amounting to paralysis. It may also be true soon after morphin has been taken, and while the system is under its effects; but when the morphin passes off, this presently disappears, and the play of the facial muscles is often exaggerated.

A gentleman who attended the funeral of his mother made the most hysterical displays of grief. His whole frame was agitated with emotional excitement. Soon afterward he retired to his room, fortified himself with the needle, and from thenceforth showed the most stolid indifference. He was a morphinist, and had reduced the amount of morphin to a low level, which accounted for his extreme emotionalism. After he had taken the usual dose, stolidity and indifference followed.

Two physical conditions have been quite often noticed in morphinists: One of great dignity, slow reserved movement, all absence of haste, with perfect command of the muscles, both of the face and body, and a quiet, dreamy, far-away indifference to both duty and environment. All work is performed in a quiet, dignified way without haste or hesitation. The other condition is one of unreasonable nervousness, muscular excitement, trembling, with want of coordination and general unsteadiness. Duties are performed in an impulsive, abrupt way, and the

surroundings seem to have a marked influence over the minor actions of life.

These two physical conditions are no doubt owing to differences of temperament, and to the degree of narcotism or amount of morphin which the patient is taking at the time, and vary at times, now distinct, and sometimes merging into each other. Some writers assert that a morphinist of long standing can be readily detected by watching his gait and manner of walking. It is asserted that the various degrees of paralysis and irritation following large doses of morphin are apparent in all the movements of body and head, and can be noted with any general examination. This undoubtedly applies to certain persons who are unaccustomed to large doses.

In the early stages, with the exception of the face and eyes, there is but little to indicate the real condition physically. The appetite may be deranged and digestion disturbed and fitful. Alternate constipation and diarrhea are common. The sleep will be deranged, sometimes prolonged beyond the usual limits, then fitful and broken, the patient being wakeful at night and sleeping through the day.

The muscles are weakened and are unable to act quickly. In an emergency they respond slowly to the action of the will. A fine tremor is often present. General sensation is affected. Pruritus

and neuralgias of various sections of the body are prominent symptoms. Obstinate constipation and dysuria are not uncommon. Vision, smell, taste, and hearing are greatly enfeebled. The pupils are generally contracted, or greatly dilated at times. Anorexia with dry tongue and thirst are present. Hydrochloric acid in the gastric juice is absent, and there is diminished intestinal secretion and bile, followed by complex symptoms in the gastro-intestinal tract. Nutrition fails, with loss of flesh, and there is edema about the ankles. The skin becomes rough, and the sweat glands increase their activity, while that of the sebaceous glands is diminished. This is frequently followed by various eruptions and abscesses. In many cases the urine is unaltered, although it frequently contains morphin. The sexual desire is sometimes stimulated by the first effects of morphin, then is diminished, and finally destroyed altogether. In women amenorrhea is common. Grave complications appear, both mental and physical. Other drugs are substituted, which increase the cachexia, and final collapse. Acute insanity is rarely seen, although melancholia and suicide are not uncommon. Usually dementia of a stuporous form, associated with muttering delirium, terminates the case. Children born of mothers under the influence of morphin have very low vitality, and often die early.

The mental symptoms of morphinism are much more pronounced and clearly defined. Dr. Lentz* has tabulated what he considers to be the most prominent changes in morphinism:

"First, the diminished power of recollection. Increasing amnesia or disability to recall past mental images and ideas.

"Second, diminished power of attention and volition.

"Third, diminished power of initiativeness and energy of conduct.

"Fourth, diminished muscular power, frequently marked by trembling.

"Fifth, blunting of the higher moral and ethical senses.

"Sixth, insomnia, loss of desire for sleep, and nutritive disturbances of the whole cortical sphere.

"Seventh, disturbances in the balance of representation between the external world and the ego, with false impressions, hallucinations, delusions, and suspicions of wrong."

These divisions undoubtedly describe the conditions which occur more or less prominently in every case.

The first effect of morphin is noticed in the derangement of the senses. The eye shows the first change. Then the hearing is duller. At first it is

* "La Temperance," 1894.

somewhat exaggerated, but soon diminishes. If the person is a musician, this is very marked in his decreased sense of sound. He will play out of time because he cannot hear and think so clearly and quickly. His sight of the notes will be more obscured and slow. If he is a pianist, his sense of touch will be less delicate, more irregular, and impulsive. If he is a singer, both his sense of the relation of sound and tune will be dulled and his capacity to articulate exact tones will be lessened and the voice become harsher. His taste will also be disturbed, sometimes showing great changes and often extreme disgust for things previously pleasant; or it may become greatly exaggerated, and display abnormal longings for strange flavors.

The occasional narcotism of the higher brain, affecting the senses, first may sometimes increase their acuteness for a brief period, but brain power constantly diminishes. The continued use of opium perverts the normal activities of its functions. When morphin is used continuously, the nutrition and appetite show perversions which may extend to active delusions; thus, in one case liquid foods were used exclusively, from the delusion that solid foods were always burdensome and poisonous to the system.

In another case a fish diet was insisted upon, the subject reasoning that all other diets were inju-

rious. Great varieties of food perversions, strange appetites and tastes follow, which in many instances indicate the form of addiction or drug taken.

Next to the sense derangements comes the damage to the higher morals. One cannot use morphin long without suffering from weakened and obscure ideas of duty and right relations to others. Conceptions of truth and discriminations between truth and falsehood become more and more cloudy. Egotism, selfishness, childish prevarication, and inability to act along rational, consistent lines of duty and obligation increase rapidly in some cases; in others slowly. In all, after a time, there are marked changes.

The constant narcotism, besides breaking up the accuracy of the sense impressions, diminishes the capacity to analyze them. The brain is constantly receiving inaccurate information, and is unable to discriminate and act wisely. Untruthfulness, a decreasing sense of honor, less pride of character and appearance, follow. Forgetfulness to carry out promises, suspicion of wrong from others, credulity, intrigue, with delusions of ability to conceal the present condition and deceive friends and associates, all are common symptoms of the degeneration of the higher brain.

A sudden change of character is significant of some profound revolution and breaking down of the

nerve-centers. A man previously truthful and honest who suddenly falsifies and does disreputable things without motive may be expected to be under the influence of some powerful drug.

A business man who displayed great changes of character was judged to be a morphin-taker by his physician, who could not account for them in any other way. The diagnosis was found to be correct, although at the time there were no other reasons for this conclusion.

The failure of the higher ethical brain may be said to be a pathognomonic symptom, occurring in all cases of morphinism, sometimes prominently in the early stages; in others, unnoticed until later, and then varying in degree and direction, but always present.

Kleptomania is thought to be one of the most common symptoms of this change in the morphinist. Very startling and strange cases are reported in large cities among persons called shoplifters, who in many instances are users of this drug. There are in all large cities kleptomaniacs among women of the better class who, without purpose or motive, purloin anything that may attract their attention. Sometimes their thefts show great cunning and adroitness; at others, they are stupid and bold.

In the reported cases of this class there are persons who stole only paper and pencils; others took hand-

kerchiefs; others, knives and forks and napkin-rings; others, fans and perfumery bottles and articles of jewelry; and so on in an endless procession. Why they should simply take one article or class of articles is not easily explained. These stolen goods never brought any profit by being sold or pawned, but simply were taken to gratify a morbid impulse for possession. Some of these persons boast of a very high ethical character and show great alertness and cunning to explain their inconsistent conduct, yet take advantage of every opportunity to deceive.

A writer has said that many of the shoplifters among women, or those who are known to be kleptomaniacs among the higher walks of life, are found to be very much worse at the menstrual period, and after that do not exhibit these peculiarities. The wife of a noted physician, who used morphin irregularly, always stole books for the first two or three days after the cessation of the menstrual period, and could not recollect where she had been or what she had done. When convinced, she manifested extreme penitence and sought to restore or pay for the stolen goods. No efforts of an attendant could prevent the thefts and no watching could outwit the cunning displayed.

A morphinist under the writer's care during the menstrual period displayed great cunning in procuring morphin and concealing it. She did not use it,

but was possessed with a mania to get it secretly. It was found to be useless to attempt to prevent her unless she was locked up. Finally she was not restrained at this time, and when the mania was over she freely gave up all the morphin obtained and described the means of procuring it.

A very able man, from his eccentricity of conduct suspected of taking drugs, was found to have distinct periods of swindling propensities, during which he would plan and execute or try to carry out schemes of the most disreputable nature. His associates recognized that he was not sane on these occasions, and would postpone action until he recovered his equilibrium and recognized the danger of his schemes.

A number of morphinists have erotic paroxysms of a few days' duration. Their conduct during this time is that of sexual maniacs. Rapes, seductions, and other criminal acts occur, sometimes boldly, or with secretiveness and cunning. When coming under legal notice, no degree of morphin addiction has been recognized, and yet such persons are literally imbeciles.

Religious manias, speculative manias, political and social changes of opinions, and indorsement of strange theories are the signs of mental change and of the presence of morphin, especially when these conditions alternate or are variable.

The morphinist, when examined carefully, will

always be found to display changes of conduct and appearance that are unaccountable from any other cause. His habits of working, sleeping, eating, and mental activity are altered, and new conditions come on. The nights are passed in wakefulness. Sleep comes only in the morning. Sometimes any monotonous surroundings will suggest and bring on sleep, as in the case of old people. Excitement of any kind is followed by insomnia and vertigo. Sometimes muscular excitement and nervous unrest demand constant action and movement. At other times great indisposition to move or stir is apparent.

The general symptomatology may be expressed as resembling that of progressive paralysis confined largely to the sense organs, the brain, and its higher functional activities. The genital functions suffer. Impotence, irritation, priapism, nymphomania, and paralysis of the sexual functions are more or less common.

The anesthesia alternating with hyperesthesia beginning at the sensory centers extends to the higher brain and merges into paralysis to a certain degree after a time. Sometimes it is very pronounced in delusive egotism; at others, in melancholia; at others, in depression and dementia.

The complications are numerous, resulting in a wide variation of symptoms and progress. The heart becomes functionally deranged and asthmatic

states come on. Catarrhal states and hoarseness are common. Acute bronchitis, pneumonia, or nephritis may suddenly appear, usually ending fatally. Abscesses where the needle has been used develop into erysipelatous states and death. Acute inflammations are always impending and likely to break out at any time.

Notwithstanding these perilous symptoms, a certain number of morphinists live to advanced age, and although suffering from impaired health and general feebleness, seem to evade the ordinary consequences of this poison. Others, realizing their position, make frequent struggles to escape, giving up the drug for a short time, then returning to it, always full of hope that they will be able to live without it, yet continually relapsing, and finally dying from some intercurrent disease.

Notwithstanding the fact that the symptoms may vary widely, according to the conditions of living, predispositions both inherited and acquired, there is generally a uniform line of progress which may be traceable in each case. No efforts at concealment can last long. Certain symptoms distinguishable by the expert diagnostician are rarely absent, and while it may not be possible always to verify them, yet a careful study of the patient's daily life and history will often give ample confirmation.

When morphin is removed a great variety of very complex symptoms appear. Often some symptoms, prominent before, become intensified and greatly exaggerated, or new ones appear. In all this there is profound anemia and nerve exhaustion, which may be constant or in other cases vary from week to week, demanding persistent watchfulness.

It not infrequently happens that secret morphin-takers suddenly abandon the use of the drug, and the physician, not knowing this fact, is puzzled at the complex symptoms. The patient is under a strain to conceal the causes, and not infrequently phenomenal cases are reported in which the morphin addiction, if known, would clear up the mystery.

In the withdrawal symptoms there are both physical and psychic elements which must be recognized. The one is directly due to abstinence and irritation following the withdrawal of the morphin; the other is very largely based on the memory of the pain which morphin was first taken to remove. The latter condition is rarely recognized, but it can be seen very distinctly in many cases during the withdrawal period.

If the morphin was first used to combat the suffering from insomnia, this symptom will become most prominent in the withdrawal stage. If used first for neuralgias, local or general, or dyspepsias or degrees of exhaustion, these conditions reappear

plus the damage to the nerve-centers from the continuous addiction.

The exhaustion from sexual excess which provoked the use of morphin is not infrequently followed after its removal by a sexual delirium with the same exhaustion. No matter how long the morphin may have been used, the causes for which it was first taken remain, and frequently appear when the narcotism is taken away.

In morphinism two extreme conditions follow each other: one of anesthesia, and the other of hyperesthesia. The latter is very prominent as a result of the removal of the drug, and is always associated with sensory defects. It is this stage of hyperesthesia following the withdrawal in which dreams both horrid and pleasurable occur, and with exaggerated and confused sense perceptions. In some cases this condition becomes intensified up to the stage of mania of a painful form.

Another psychic phase is the delusion of will-power to control the body. Such persons are practically victims of paralysis of the will without being conscious of it. Experience teaches them nothing. They still believe in their ability to control themselves.

Notwithstanding this hyperesthesia, the intellectual faculties may show little change and the conduct along automatic lines may be practically the

same as before. The want of decision and irresolution may be concealed, and only appear along lines of new personalities. When morphin is taken again, the defects of will and conduct may suddenly disappear and all the old vigor apparently return.

Thus, in one case, a clergyman who occupied a prominent place was at times considered by his intimates to be insane. These insane attacks would be followed by periods of great mental clearness, in which his sermons and intellectual work were equal to those of any time of his life. Except a slight pallor and loss of pride of appearance, nothing could be noticed. He was a morphin-taker, and these periods of mental aberration followed the hyperesthetic state from abstinence from morphin. At times the pulse was intermittent, the heart's action weak, and dyspnea with hoarseness was especially marked. The eyes lost their brightness and the face its power of expression; the skin had an earthy look. All this would change in a brief time and his former vigor would come on. These strange periods of insanity and great mental activity were due to his secret efforts to give up the drug, and his failure and relapse to its use again. Sudden changes of this nature suggest the use of morphin or other narcotic drugs.

The presence of delusions and hallucinations is

certain to follow in all cases, although sometimes not so prominently noticed as in other insanities. References will be made to these in the chapter on medicolegal considerations. The most common of all the delusions that have been mentioned are those of the harmlessness of the addiction and of the ability to stop at any time, and when these delusions are exposed, they are explained by external influences over which the patients have no control.

Other delusions have reference to the injustice of their friends and the failure to recognize their real condition, the effect of which is to precipitate them into worse states. The delusions are largely false reasonings, built up from the erroneous sense impressions, and perverted conceptions of their own conditions and surroundings.

In some instances very marked delusions of the infidelity of wives or husbands, and the dishonesty of the persons with whom they have business relations, are present. Often these very delusions have a basis in their own conduct. Men and women who are unfaithful are positive that others are deceiving in the same way. Those who are dishonest themselves look with suspicion upon everybody else.

Some of the hallucinations are less marked, and more frequently are concentrated on minor objects, such as voices at night, which keep them awake,

and sounds of passing persons who wish to annoy them, or the effect of drugs which have prevented them from seeing or hearing properly. They are nearly always confined to petty acts of persecution. Many examples of these will be found in the "Journal of Inebriety."

One quite prominent incident excited a great deal of interest in a large city. A physician of prominence began to write slanderous notes under assumed names to persons he supposed to be his enemies. This was continued for nearly a year, creating immense excitement and disgust. Finally the author was revealed, but stoutly denied all complicity. He was a morphin-taker, and this was simply a delusional state taking on the form of slander.

The boasted strength and extreme indignation manifest when doubts are mentioned are quite common among the better class of morphinists. An instance is that of a clergyman whose egotism both in and out of the pulpit grew more and more offensive. When remonstrated with, he considered it persecution, and acted more and more defiantly. Finally he was taken with acute pneumonia, went to a hospital, and his morphinism was discovered.

Often the strange political, sociologic, and moral theories urged by persons of previous good judgment and character are explained by finding them to be morphinists. Radicals and extremists who are

bold to recklessness, and then suddenly subside and fail to make their actions consistent, often appear as drug-takers after a time.

Usually the morphinist is not a leader or innovator in any department of work or thought. He may be a critic and doubter, but he rarely takes an active part in any original work. The increasing anesthesia from the drug makes him more and more disinclined to active participation in public affairs and more anxious for retirement and seclusion, yet in the early stages strange, erratic courses of conduct may be a marked peculiarity. The following is a typical case, illustrating the general symptoms of morphinism:

A. B., a lawyer, temperate and well up to forty years of age, without any history of heredity, became disappointed at the failure of his election to a public office. A period of invalidism followed, ending in his becoming a secret morphinist. For five years he followed his profession with industry and energy, but his conduct changed. He was less reliable, and was either very brilliant or stupid, He displayed great energy over unimportant trifles and was indifferent to graver matters. He was harsh in his family relations at times and over-indulgent at others. Sometimes he would go away for a week unexpectedly, apparently wandering round without purpose or motive, then returning,

giving frivolous excuses for his absence and displaying for a time great energy of mind and body. His memory failed him and he frequently took false positions in court on questions of law, and when proved to be in the wrong, persisted in explaining his mistake in some strange way. His appetite failed, his sleep was broken, and his irritability increased. His addiction to morphin was exposed and his friends remonstrated with him to no purpose. He became egotistical, was confident that he could stop at any time, and believed his condition was aggravated by the faults of his friends and surroundings. He refused to take any medicine, and when at times it was difficult for him to procure morphin, would use spirits. His manner changed. He became rough, coarse, abrupt, careless in dress and slovenly in appearance, avoided company, and was irritable when opposed and unreliable in his promises. He lost business and friends and fell into disreputable ways, and was finally arrested for forging pension papers. The sentence was suspended on his promise to go under treatment in an asylum. The morphin was removed. He was discharged, but a year later relapsed and became demented, and was returned to the asylum.

This illustrates many of the prominent features in the symptomatology of these cases.

The second example is given to show some of

the more obscure symptoms which occur among the cultured classes. An eminent teacher and president of a college, while doing some research work in the far West, contracted malaria, and was an invalid for several months. There is no doubt that he began the secret use of morphin about this time. For several years his changing manners and disregard of personal appearance attracted some attention. He seemed careless and forgetful of his promises, and from being an open, frank man became secretive and suspicious. His family physician diagnosed neurasthenia, and treated him elaborately, advising rest and change. Disorders of digestion and sleep, associated with stages of irritation and strange indifference amounting to exhaustion and stupor, alternated with each other. He would not allow massage to be practised or the application of electricity except over his clothing. When the physician insisted on a physical examination of his abdomen, he refused, giving the most frivolous excuses. At times his eye was flashing and brilliant, then there would be periods of dulness in which he would be half asleep. This condition continued for a long time, no one suspecting the real cause. In the interval he went abroad, visited watering-places, and took special courses of treatment. One physician diagnosed paresis; another, serious mental trouble; all agreed that he had cerebrasthenia and

neurasthenia. At length he resigned from his college and went to live in the country, where by an accident the supply of morphin gave out and the withdrawal symptoms precipitated him into semi-maniacal conditions which were treated by morphin; and the diagnosis of morphinism was made by a country physician. The mania subsided, but he continued the use of morphin until his death a few years afterward. His ability to conceal and explain his untoward symptoms baffled all the physicians he was brought in contact with, with one exception.

A third example brings out some very unusual symptoms in the progress of a case which serve to illustrate another phase of these obscure diseases. A widow, a leader in society and prominent for her intelligence and culture, was overwhelmed with grief at the death of her favorite son. The insomnia and suffering which followed were treated by the attending physician with morphin by the needle. She seemed to recover and the morphin was abandoned by the physician. Probably from this time she continued its use secretly. After a period of prolonged travel she returned, and manifested extraordinary interest in church and philanthropic work, visiting the sick and leading prayer-meetings, showing great fervor and religious devotion. This was so unusual as to attract attention. She was found to be impulsive and erratic. After lying in

bed for a day or two, she would have a period of an equal length of time in which she would be very energetic in religious work, then claim exhaustion and be secluded in her home for a time. Her conduct grew more and more inconsistent. She was forgetful of her promises and denied things which she had done a day or two previously; was suspicious of those about her, and at times manifested great irritability, then extreme penitence and sorrow. To her family she became more distant and uncertain —sometimes rarely speaking; then very effusive and anxious about their interests. She spent a great deal of time in her room. She adopted the Seventh Day Baptist theories and believed in the sudden early coming of the end of the world. With her clergyman she was contentious and strangely inconsistent. To the family physician she was skeptical, and would not take medicines. This condition of erratic religious emotionalism continued for five years, while the mental disturbances increased and her appearance grew more and more wretched. Finally she was taken to a sanatorium, when her real trouble was discovered. In all these years she had used morphin with the needle in small doses and had been able to conceal it from her family and friends.

Example fourth is more prominent, and probably more common in the ordinary experience of life. A

merchant who had used wine on the table for many years, abstaining at all other times, became ill from acute indigestion, and was given morphin by the needle. The trouble continuing, the physician procured a needle for him and taught him how to use it when suffering. He abandoned all use of spirits and very soon exhibited marked changes of appearance. His dress was slovenly and his manners careless, and his former pride declined. He became untruthful, allowed his notes to go to protest, neglected his business, and claimed that these faults were due to others; was extremely parsimonious at times and credulous. He engaged in several business schemes that were failures. He claimed all the time that he was perfectly well, and had no pains or aches. His habits of sleeping and eating were irregular, and he frequently disappeared on apparently aimless journeys. On one occasion his leg was broken, and he was taken to a hospital, where his morphin addiction was discovered. From this time on, all efforts at concealment were abandoned. He used morphin daily, became an intriguer, lost his property and reputation. He made several efforts to recover in different asylums, but relapsed soon after leaving, and finally died.

In these four cases the general symptoms of morphinism are outlined. When morphin is abandoned for opium, the concealment is less prominent. The

effects of opium are more of a narcotic than those of morphin, and the stupor and changed conditions are more apparent. The irritation and exaltation seen in morphinists is seldom marked in opium patients. Hence a disposition to stupor is a significant symptom of opium-taking. All the symptoms taken together are essential to determine the probable causes, and no one symptom is to be relied upon.

The variations noticed in the symptomatology of morphin cases are due to idiosyncrasies of the individual and of the surroundings, training, occupation, and purposes in life. In one with a previously defective brain the action of morphin will often conceal the defects or intensify them. When one is born with a feeble ethical brain and is deficient in self-control, the effects of morphin will differ from those of a person who had a large development of the high moral brain.

The petty criminality and deception so common among the lower classes who use morphin no doubt have a basis in early paralysis or defect of the higher brain. Many of the peculiarities of conduct and thought may have had an early physical basis of defect which the morphinism intensified and brought out.

The strange peculiarities which appear in a large number of cases are no doubt often traceable to

organic defects; at all events, these strange delusions, impulses, and insanities show peculiar psychic and physical disorganization. How far the removal of morphin will change these conditions and restore the original condition of health and vigor is still an unsettled question.

From an examination of a large number of persons there are traces of a uniform movement and general symptomatology following certain lines which are very apparent in many cases. In all probability after the first five years of morphin addiction conditions of chronicity are established which lessen the chances of recovery. The second five years in the progress increases the chronicity, and usually ends in death or insanity and stages of dementia. This dates from the time when morphin was first used continuously.

It is asserted by some writers that ten years of the continuous use of morphin without break or change makes the case a fatal one, death following from exhaustion and acute intercurrent diseases. In reality very few cases use morphin regularly in increasing doses so long as eight or ten years. There are generally breaks and halts and efforts to abandon the morphin or to substitute some other drug for it. Many persons use morphin in small and irregular doses depending upon conditions of pain or temporary distress. Used in this way, the addic-

tion may go on for a long time and may not increase to large doses unless the patient is past middle life.

When the addiction has extended beyond eight or ten years, the future becomes more and more uncertain. A sudden mania may supervene and the morphin may be given in continuous narcotic doses until the brain gives way. Many of these cases become opium-smokers, finding the narcotism from opium more pleasing and lasting longer, hence they turn to it.

If the stomach is not disturbed, the addiction may go on for years. If alcohol is substituted, the mental disturbance increases and the possibility of pneumonia and nephritis is increased.

It may be said in a general way that few morphin habitués live longer than ten or fifteen years after the beginning of the addiction. Most of them die in about ten years. Others, from changes and breaks in its use and efforts to recover, go on a little longer.

A certain number suffer from general marasmus and die from exhaustion. Others become demented and develop ascites, nephritis, and die. A certain number suffer from paralysis before death, usually of the extremities, followed by heart failure. In some cases sudden coma, apparently due to morphin, ends fatally. In these cases there is present some form of autointoxication, which, added to

that of the morphin, increases its toxic effects on the heart and brain-centers.

If alcohol has been associated with morphin, neuritis, rheumatism, and blood diseases sometimes appear at the termination of the case. Hemorrhage is not often noticed, except where there is fatty heart and a tendency to arthritis.

The few cases that go beyond fifteen years show decided signs of extreme age and degeneration. Sudden death is a common termination, usually from heart failure. Stories of morphinists living to old age are seldom confirmed, but instances of persons who alternate the use of opium and morphin with spirits and have free intervals of uncertain duration are noted.

The general anemic and hysteric symptoms cannot be mistaken. The profound failure of what is called the higher moral brain is always a most significant symptom. Untruthfulness, loss of all moral consideration and sense of duty to others, with intense selfishness, are characteristic symptoms. The more degenerate in this respect, the more emphatic will be the claims of honor and morality. No statement by the patient of his condition and purposes can be trusted, no matter what the motives may be. To this there are exceptions, but they only prove the rule.

A certain number of morphin-takers after an experience of frequent withdrawal and relapses have

a delusion of being beyond all possibility of relapse. From the depression which existed before, they go to the other extreme, and indulge in the most credulous expectations of never using the drug again. If in company of persons of similar character, they receive new exaltations and are more sanguine and positive.

In some instances they enjoy posing as reformed and restored morphinists whose former life was filled with wretchedness and misery, and who now have gone to the other extreme of vigor, contentment, and happiness. Persons who have used alcohol associated with the morphin often become vociferous reformers, and their very positiveness is suspicious. Such men are found about sanatoriums, on the streets, and in public places, at reform meetings, proclaiming loudly and emphatically their escape, and boasting of the means which they used.

This class have become prominent as managers and supporters of the "gold cure" asylums and the secret drugs to break up morphinism. After a time they disappear, relapsing to the old addiction. Sometimes some of these persons recover and appear again in public, but of the morphinomaniacs only a few ever pose for reputation and public notice more than once or twice. The degeneracy which accompanies their relapse is so intense that recovery rarely lasts for any length of time.

Some of these persons resort to other drugs, and appear in sanatoriums as habitués of some new narcotic. Some of the coal-tar derivatives have been found to take the place of morphin, and been used to excess, and generally with bad results. The treatment of all such cases by narcotics is very likely to create a new drug addiction.

The following is an example of a drug neurotic: Beginning the use of spirits at eighteen, at twenty the subject was a morphinist; later he was a cocain-taker; then he turned to alcohol and chloroform, and finally to opium smoking and the use of paraldehyd and antipyrin. From each of these addictions he claimed to be permanently cured. He has posed on several occasions as an example of the value of this or that method of treatment. He has been connected with two empiric "gold cures," and is a promoter of specific drugs of this class, and a public lecturer and philanthropist in name.

Not infrequently patients who have used morphin for some time will have hallucinations and delusions of persons coming into their room at night and threatening them, or of voices heard through the open door planning schemes for their injury, or perhaps the nurse in her efforts to adjust the bed or pillow will be charged with having struck or tried to injure the patient. Such patients will complain of ill treatment and insults from certain members of

the family or from persons outside. If the needle is used, fears of poisoning will be entertained, of syphilis being injected, or of other means taken to destroy them. The use of the needle from entirely mental causes and the anticipation of pain may produce nausea. The imagination will become very vivid, not only about personal matters, but concerning events outside. Such persons are psychopaths, and are on the border-lines of insanity, and always complaining of conditions outside of themselves. Everything is objective and should be diferent. Manias and phobias and defects of the senses and reasoning are common. These symptoms point to morphinism, and may be the leading ones which indicate mental change.

CHAPTER V

DIAGNOSIS; PROGNOSIS; COMPLICATIONS

The Eye. The Voice. The Manner. The Skin. The Appetite. Some Means of Diagnosis. Changes in Appearance. Egotism. The Prognosis. Conditions Which Determine This. Sudden Changes. Relapses. Other Drug-taking. Detection in the Urine. Washing Out the Stomach. Examples.

NOTWITHSTANDING the uniformity of many symptoms, there are frequent exceptions, and the physician must be prepared for these if he would make an accurate diagnosis. The common symptoms of anemia and pallor are wanting in some cases. Emaciation may be absent. The person may appear to be increasing in flesh, and his skin ruddy and clear.

The small pupil is not pathognomonic. As elsewhere stated, often morphinists combine atropin or belladonna, which prevents the diminished size of the pupil, and in some instances gives brilliancy and clearness to the eye.

The supposed nervousness does not occur in all cases, and is not noticeable unless the amount of morphin is reduced. Some persons seem serene and placid and in no way nervous or disturbed. They will seek periods of retirement in which they will

wish to be alone a few moments, giving very plausible reasons.

The eye may sometimes seem a little different in the peculiar stare and fixedness of gaze, and in persons who are habitués of long standing, the conjunctivæ will show signs of congestion. Sometimes the voice changes. When the system is saturated with morphin, the voice will have a soft, husky tone. When the morphin passes away, the tone will be stridulent and sharp. Many of these cases suffer from itching of the skin and also of the nose.

The appetite will vary. In some instances it will be capricious for a time, and the patient will complain of indigestion. Disturbances of the bowels are also significant signs. Periods of activity, followed by extreme lassitude and fitful sleep, are also frequent indications. In the chronic cases, night-sweats, cold and hot flashes passing up and down the spine, tremors, and restlessness are apparent when the dose is diminished.

When alcohol is combined with opium, the symptoms become more complex and the diagnosis is more often that of alcoholism. The statement of the patient is not to be regarded as reliable, but if the morphin is used by the needle, the marks on the body are unmistakable signs.

As a rule, the diagnosis can be made by exclusion, but this necessitates very accurate study of the cir-

cumstances and conditions of life and surroundings of the patient; also the habits, occupation, and methods of thought, and these will always be open to revision and change. When the patient denies all use of the drug, the diagnosis must be a matter of inference and probable conclusion from facts which cannot be explained in any other way.

When the use of morphin is concealed and the person is determined to keep up this concealment from others, many curious symptoms will be seen. The eye will often show marks of this condition in its instability and changeableness, and when the morphin is withdrawn have the appearance of suffering, or seem defiant and suspicious. The facial expressions will change rapidly.

It is said that frequent cups of strong coffee taken by a concealed morphinist will reveal his addiction in the dilated eye and nervous trembling which follow. After the effect of the coffee begins to disappear, and with it the narcotism of the morphin, a sense of alarm will be manifest in the manner and expression.

A physician claims to be able to make a diagnosis by watching the effects of the injection of small doses of morphin. If the characteristic symptoms do not follow, he concludes at once that it is a case of this addiction. When injections of water are given and the patient believes it to be morphin, the

later symptoms of uneasiness and restlessness reveal the condition.

Probably the most significant signs are the emotional changes, such as irritability or unreasonable mental disturbance with nervousness, followed by quiet serenity and rest. When morphin has been used at first to relieve some neuralgic condition, and later taken secretly and constantly, there is often hysterical reproduction of the early causes, which can be detected by a careful study.

The changes in personal appearance, loss of pride of character, indifference to obligation and duty, together with a physical ageing in appearance, also the shoulders bent forward and the walk and air of a person rapidly growing old, are significant symptoms.

When the skin is not livid, it may become discolored and have a chocolate appearance. General anemia, with changed tone of voice, are significant. A most common diagnostic symptom is the absence of emotional muscular movements of the face, followed by the other extreme of great play of the facial muscles.

No accurate diagnosis can be made from a single examination, although careful questioning of a concealed morphinist will very often reveal his condition in his incautious, unthinking efforts to explain it. The childish prevarication and foolish sensitiveness

to appear well always excite suspicion and often indicate unmistakably the real condition. The morphinist, with all his cunning and intrigue, lacks consistency and steadiness in both conduct and mental operations, and in this way he often betrays himself.

In the later stages the defects of reason and comparison, with bad memory, are also ominous signs. The culmination of several prominent symptoms will admit of no other explanation, no matter how much the fact may be denied. Egotism of strength and ability to do unusual things is also significant.

One who claims that there is no danger from the use of morphin and that it can be given him without risk very often betrays his real condition. One who is hypersensitive, with the fear that he will be accused of this addiction, is also an object of suspicion.

It may be stated that neurotics and psychopaths who suddenly develop great control of their nervous system, with serenity of manner, are under the influence of some chemical restraint. One who has been previously a sufferer from nervous exhaustion and neuralgia, who recovers rapidly without any entailment of the disease, is open to suspicion of using this or other drugs.

Marvelous so-called recoveries from chronic and long-continued diseases by the aid of some unknown medicines undoubtedly follow the use of some form

of opium. The morphinist who fully recovers and claims to be free from all suffering is probably still using it in some other form.

The physician who claims marvelous results in chronic cases marked by a great deal of pain, and whose patients are loud in praise of their cure, is no doubt employing this drug.

It may be stated thus in a general way: The sudden, unexpected cessation of symptoms that are painful and distressing is very often due to narcotics. The alcoholist who recovers rapidly and boasts of his freedom from all possible relapse is frequently a morphinist. Thus, taking all the symptoms and conditions, the probability of an accurate diagnosis, notwithstanding the denial of the patients, is great.

The prognosis in morphinism will vary very widely according to the condition of the patient, the length of the time of the addiction, and the influence of heredity.

When organic lesions followed by severe pain have preceded the use of morphin, the future is uncertain. The removal of the drug may be followed by the breaking out of the original disease. If the patient has had prolonged malaria and the poison effects on the blood and nervous system have produced serious changes, the same uncertainty will follow.

Where morphin has been used ignorantly, or from a physician's prescription for the relief of some tem-

porary pain, the permanent cure of the case may generally be expected to follow its withdrawal. Where its early use began from defects of environment, overwork, and general malnutrition, equally good results are to be expected from long-continued, careful treatment.

Where the morphinism has been inherited, or the conditions which led to it and the length of the addiction have extended over several years, the prognosis is not hopeful; although some of the cases recover, and remain free from the drug for the rest of life, the majority relapse at uncertain intervals.

When it can be shown that physical injuries, including shocks, have been the probable causes of a long addiction, much uncertainty exists as to the future of the case. There will be periods of health after the morphin has been abandoned, and sometimes the appearance of other defects which have not been recognized before.

In cases where the patient has had a long, preliminary, occasional use of the drug, and then a period of protracted use until immunity to very large doses has been established, the withdrawal is always difficult and the permanency of any cure is somewhat doubtful.

When morphinism is complicated with spirit-taking and the addiction is of short duration, the prospect of a final cure is very good; but when the person

has been alternating between spirits, opium, morphin, and other drugs for years, the withdrawal of morphin is nearly always followed by the outbreak of an addiction to some other drug.

Some of the remarkable cures that appear in medical literature, when examined are found to be persons who have simply changed from morphin to some other drug. Thus, in one instance a hereditary neurotic was cured of alcoholic addiction, and two years later was treated for morphinism, and still later suffered from the cocain addiction; then he went back to alcohol, and finally died. In two instances this case was reported as a successful treatment for morphinism and cocainism.

In persons who have become profoundly neurotic through environment and occupation, with defective nutrition, and who continue in the same conditions, the prognosis is always grave, no matter what the treatment may be.

In some cases where morphin is taken for certain spasmodic conditions, examples of which are hysteria, stages of intermittent fever, sudden neuralgic and paroxysmal pains, its removal is not likely to be permanent unless the conditions for which it was taken have changed.

In nearly every case of morphinism the withdrawal of the drug and the temporary recovery of the patient are almost certain, but the permanency of

these cures depends very largely on the removal of the states and conditions which provoked its first use. The fact that relapse takes place is rather an incident which better judgment and more vigor on the part of the patient would have prevented.

A certain number of cases relapse after treatment; become very earnest and eager to abandon morphin again; and after a few relapses succeed. Hence it is always well to encourage the patient to repeated efforts, notwithstanding failures, for the final success of some of these so-called "incurable" cases is illustrated in many examples in all parts of the country. As a rule, such persons, when they recover, avoid all reference to any past history, hence are difficult to trace.

The ordinary cases which fail, and lose all ambition to make any efforts for themselves, are recognized by the public as types of all others. Hence the supposition that these cases are largely incurable. A certain number of persons whose addiction has continued for many years, and who have passed middle life and are very much debilitated physically and mentally, offer a very interesting question for the physician, whether it would be better to remove the morphin and uncover other and more disturbed conditions, or continue the drug and give the patient comparative quiet for the remainder of life.

Complications are very common in all these cases,

and the prognosis will vary widely, from the influence of intercurrent diseases and states of mind and body which are beyond the control of the patient.

Not infrequently the question comes up as to the advisability of treating elderly morphinists and opium-users who seem not to be greatly injured by the use of the drug. Often such persons who have been long addicted to the drug become very anxious to break away from its influence. The prognosis is usually unfavorable and the treatment unsatisfactory.

The prognosis depends largely on the mental condition of the patient; also on the elements of faith and hope, together with the objects and purposes in life.

Persons who, from repeated failures and disappointments, have lost ambition to recover and regain their previous health are doubtful cases. Those who have prospects of success, who have strong purposes to live for, and are imbued with the idea that it is only by conquering themselves that they can attain any degree of success, are hopeful cases. Those who are despairing pessimists, no matter what the addiction may be, are, in the language of another, "constantly digging their own graves and submitting to burial."

The two extremes of melancholia and egotistical exaltation are physical conditions to be recognized in

the prognosis. The former is much more grave, because the efforts made by the physician for recovery are not shared by the patient. In the other the confident expectation of the patient, if rightly directed, is a very powerful aid.

Where the disappointments and failures are transient and leave a faint impression on the patient's mind, results are much better. Persons who have had previous treatments at home or in asylums, and have failed, have the element of anticipation and repetition of the past experience to overcome; hence they are not very hopeful cases.

The detection of morphinism is often a matter of great importance, especially when the patient denies the use of the drug. The physiologic test of forced abstinence for forty-eight hours may not reveal the actual condition because of the clandestine concealment of morphin or the use of some other drug which will check the withdrawal symptoms. Often the diagnosis cannot be made with accuracy, no matter how thoroughly the surroundings are controlled.

Dr. Lett,* of Guelph, Ontario, has found the detection of morphin in the urine to be simple and accurate. He collects from ten to twenty ounces of urine in a suspected case, and if it has not an acid reaction, makes it acid with dilute hydrochloric acid. Then he concentrates the urine to three or

* "Morphine Addiction," "Journal of Inebriety," Oct., 1898.

four ounces, putting it in a cool place for twelve hours. After filtering it, carbonate of soda is added to render it alkaline, after which it is allowed to stand for twelve hours. Then he filters and collects the precipitate and washes it with distilled water made alkaline by carbonate of soda, digests the dried precipitate with pure alcohol at a gentle heat, and filters. The filtrate is evaporated to dryness. The residue is dissolved with dilute sulphuric acid, then tested for morphin by iodic acid. If morphin was present, a violet tinge was noted. By this method he has succeeded in obtaining morphin sulphate from the urine of persons taking very minute amounts of the drug, and been able to identify the crystals by means of the microscope.

In all cases of suspected poisoning by opium or its alkaloids, frequent washing of the stomach is essential. Where persons are discovered in a comatose condition, a free washing may remove a large quantity of morphin, which would otherwise be absorbed later and cause death. Washing many hours after the case was discovered has resulted in finding traces of morphin and opium which were not absorbed. The results of each washing should be preserved and tested. The urine should also be removed and kept for examination. Where the absorption of the morphin into the system has been going on, the urine will frequently show its presence.

In every suspected case of medicolegal importance both the urine and the contents of the stomach should be carefully preserved in clean bottles or jars and placed in a cool temperature, where they can be examined later. Care should be taken that a sufficient quantity is saved and, if possible, placed in different jars, so that comparative tests may be made.

A comatose state followed by emesis should excite suspicion of morphin-poisoning, and the contents of the stomach should be carefully preserved. Dr. Hamburger,* of the Johns Hopkins Hospital, believes that repeated washing of the stomach in morphin- or opium-poisoning or in suspected cases is a most practical measure.

In a case of opium-poisoning the stomach was washed out repeatedly at intervals of one or two hours, and in each case the fluids, although colorless, gave a morphin reaction, showing that morphin was excreted into the stomach from the viscus. This evidence seemed to prove that excreted morphin is reabsorbed and has continuous toxic properties. It also explains cases of apparent recovery from the toxic action of morphin followed by sudden relapses. It is generally admitted that in large doses of morphin a small quantity only may be eliminated by the urine, and practically the largest amount is eliminated

* "Journal of Inebriety," Jan., 1895.

through the stomach. In the case mentioned above the first washing removed the unabsorbed opium; the second and third washings brought the alkaloids, which could only have come through excretion by the gastric mucous membrane.

The practical fact to be remembered is that where morphin or opium is found in the stomach from the first washing, this process must be repeated at short intervals to remove the alkaloids which are excreted by the mucous membrane whether the opium has been taken by the mouth or hypodermically. If the contents of the stomach in a suspected case give the meconic acid reaction when filtered,—namely, the red color with ferric chlorid or ferrous sulphate,—and if the color persists on the addition of hydrochloric acid and boiling, opium is present. If the filtered fluid is made alkaline with sodium hydrate, shaken up with ether, and evaporated, and the yellowish-white residue dissolved in acidulated water, it responds to the following reagents: platinic chlorid, iodin in potassium iodid solution, sodium molybdate, sulphuric acid (Frohde), potassium-bismuth iodid, and potassium mercuric iodid —showing the presence of meconic acid and the alkaloids.

In the test for morphin in the urine there is much difficulty in separating the morphin from the urea, as they both behave toward solvents in the same

way. The control tests show that urea does not interfere with the following morphin reactions. A minute quantity of the residue dissolved in water and treated on a porcelain dish with a drop of ammonium molybdate gave a yellow precipitate, and the addition of a drop or two of concentrated sulphuric acid causes violet, blue, and green, which all solutions of morphin give under the same conditions.

These tests may furnish fairly conclusive evidence of the presence of opium; still, in a question where the matter is life or death they would be insufficient of themselves to procure a conviction. To be absolutely certain of the presence of opium in a mixture the meconic acid and morphin must be isolated and purified, and then only can the results obtained furnish conclusive evidence. Color tests are insufficient and rarely positive.

It is fortunate that any continuous use of morphin, even for a brief time, is usually marked by changes and symptoms which are usually not traceable to other causes. These symptoms, when carefully studied, bring confirmatory proof, which, together with the chemical tests, establish conviction beyond all reasonable doubt.

Many cases of morphinism are concealed during the lifetime, and only after death is the addiction discovered. The following are examples:

A widow aged forty-five, of wealth, and previously healthy, suddenly became an invalid, suffering from many complex and obscure symptoms which indicated serious organic disease. Several eminent physicians were consulted, both in this country and in Europe, and widely differing plans of treatment were followed without success. She manifested alarm and extreme anxiety to recover, and seemed to be thoroughly honest in following out all the directions given. Finally she died from pneumonia. After death her body was found covered with marks of the needle, and the evidence of her morphin addiction was apparent. She had concealed this in the most adroit way for years, and when questioned stoutly denied using any such drug.

Another example is that of a robust clergyman who, at fifty years of age, suddenly became erratic in conduct, and showed great emotional changes. He would sit up at night and sleep during the day. Was alternately depressed and exalted. At times his pulpit exercises were of a delirious and melancholic character. At others they were childish and stupid. These conditions were diagnosed as due to changes of the brain and nervous system from organic disease. He was examined and treated by many eminent authorities without success. Finally he was taken to the hospital suffering from a fractured femur, and soon afterward became delirious and died. His

morphin addiction was discovered after his death. For years he had carefully concealed it, so that it was not suspected by his intimate friends.

A third example, which excited a great deal of comment at the time, was that of a noted politician, who suddenly displayed great changes of character and judgment, and for years conducted himself in the most unusual manner, disappearing suddenly when most wanted, acting wildly, to the detriment of his interests, showing great suspicion of his friends and personal dishonesty. He was treated for obscure brain disease, spending months at watering-places and sanatoriums, and finally died suddenly. From scars on his body, and the needles found in his possession, the morphin addiction was discovered.

Such cases as these are by no means infrequent. Their detection during life will depend on a careful study of the symptoms and progress of the case. They show that it is possible to use morphin secretly for some time, and the symptoms which follow will not be rightly interpreted unless the patient is under observation for a long time.

CHAPTER VI

TREATMENT; ASYLUM CONDITIONS; DRUGS; HYGIENIC MEASURES

Control of Patient. Removal from Home. Private Asylums. Seeking New Remedies and New Methods of Treatment. Exaltation and Delusion. Restraint and Freedom. Different Methods of Withdrawal. How They Are to be Applied. Some Remedies to be Used. The Needle and the Use of Opium as a Remedy. Narcotics in the Treatment. Insomnia; Its Treatment. Water and Its Application. Different Plans of Treatment. The Author's Plan; Its Details. After the Treatment, Psychic Element to be Noted. Placebos. Time of Treatment. Delusive Symptoms. Theories of the Withdrawal Symptoms. Treatment at Home. Cannot do Business During the Treatment. Examples.

THE first thing in the treatment must be to secure the control of the patient. His own volition must be subservient to that of the physician. He cannot reason or direct as to the plan of treatment. Failure always follows self-treatment.

Removal from home is most essential to secure this control. As in other neuroses, particularly insanity, hysteria, and forms of neurasthenia, only control by and contact with strangers are effectual. This helps to break up the morbid trend of reasoning and associations, which cannot be done at home and with relatives.

Private and special asylums, if properly managed,

have superior advantages which cannot be obtained elsewhere. In such places the stimulating firmness of a stranger, if coming with tact, does much to rouse up a weakened will. The surroundings, with the central purpose of removing the morphin, will encourage personal effort on the part of the patient. This idea should be made dominant at the beginning.

The tendency of each person is to exaggerate the importance of conditions and surroundings in the treatment; also to consider the process of withdrawal and final cure dependent on some insignificant circumstances or conditions. This idea is to be antagonized and overcome by the efforts of the physician and attendant. If the patient's mind can be concentrated and have full faith in the means used, this is additional help. This often follows after a few days' treatment in most cases, and is the basis of final cure.

If the mind is unsteady and unable to retain confidence in the measures used, the physician must be resourceful enough to supply this deficiency and retain the confidence of the patient. In some cases the morphinists are continuously casting about for some new means and measures superior to those used. No plan of treatment, however enthusiastically begun, is ever voluntarily continued long. The mind seems to be continuously occupied in finding new and better methods.

If the patient is a physician, the difficulty is increased, and the result of the treatment is more uncertain. If he can be persuaded to trust implicitly to the physician and attendant, having no concern as to the means and methods of treatment, the recovery is far more certain. The persons who are unable to repose confidence in any means or measures for their treatment, except for a brief time, and who are suspicious, egotistic, and determined to trust their own judgment, and insist upon deciding questions of treatment, are very largely of the incurable class.

This delusional state is insanity, and not infrequently the first stage of general paresis. Such cases dread control and are averse to following the uniform line of conduct planned by the physician. They insist on freedom to come and go, and demand implicit trust in their promises to carry out the treatment. Such cases need, first of all, sharp restraint, with full control of the surroundings, and absolute conformity to all rules and regulations. Without this, successful treatment is always difficult. To those who have confidence in the means employed and show a disposition to trust implicitly to the physician and attendant, restraint of this kind is not necessary. When they seem willing to bear pain and discomfort, and to make an effort to help themselves, recovery is rapid.

The question of restraint is dependent largely on the condition of the individual. In some instances it is stimulating and helpful; in others, irritating and depressing. In most cases a measure of espionage and control is absolutely necessary. This cannot be determined clearly at the beginning of the treatment, but will be ascertained from personal observation and study of the case.

In some instances the surroundings of an institution and the fact of being in an asylum are a restraining power fully recognized; in others, the opposite condition obtains. To many, the personality and control of the physician or attendant are sufficiently stimulating, and persons are able to recover without further restraint.

Surveillance should be continued for a long time after the cessation of active treatment, and the patient's condition and surroundings should be a special subject of inquiry for the purpose of avoiding temptation and causes which favor relapse. Thus, the business or professional man should not go back at once to his old life and subject himself to all the strains and drains which brought on his former addictions. Nor should the person of wealth return to habits of indolence and excess. The effort of the physician should be to impress on the patient's mind the need of a radical change in his life and methods of living. This should be done at the beginning of

the treatment. The profound neurasthenia associated with mental enfeeblement and moral palsies are conditions present in all cases. These facts should be considered in the treatment.

The withdrawal of the drug removes an active cause, and is only preliminary in the treatment. In many cases it simply unmasks states not suspected before, but in all instances it enables the physician to lay down some plan of treatment for the future restoration of the victim.

In the removal of the morphin three methods have warm advocates: First, the immediate and entire withdrawal; second, the rapid reduction, extending over two or three days; third, the gradual reduction, lasting two or three weeks.

The first method, of immediate withdrawal, has many advocates abroad. Levinstein practised this method with success, and urged it as the most rational method of radical cure. The cases were shut up in asylums and the morphin withdrawn at once. Bromids, hot baths, and hot soups were given freely. After the third day the withdrawal symptoms subsided, and in a week the patient was quiet and comfortable. This method has been opposed and pronounced inhuman. Practically it is used in station-houses and jails, where persons who are morphinists arrested for crime are forced to abandon the drug. Periods of withdrawal symptoms are

often not recognized as such, but are ascribed to some other condition. For this reason many persons are treated for some other condition, and when confined in jails have periods of acute illness, from which they recover.

It is exceedingly doubtful if the collapse from sudden withdrawal ever ends in death, although the effect upon the patient's mind and body is often very severe. In large cities physicians to the station-houses find laudanum and morphin most excellent stimulants, particularly in the sudden collapses which indicate the strong probability of morphinism.

In private practice this method is impracticable, although it has been tried with the consent of the patient. It requires proper surroundings and excellent attendants as well as close medical watching.

The rapid reduction covering two or three days or a longer period is very feasible and successful in many cases. It requires special surroundings, with trained help, and careful medication. The usual method is to reduce the quantity of morphin taken, no matter how large, to two or three grains daily. This can be done without much suffering, showing that the enormous doses used have not had their proportional effects. No doubt a large quantity of the morphin is unabsorbed, and remains in the system, with the possibility of suddenly develop-

ing profound narcotism and death. Thus, a person using twenty grains daily will die suddenly from no observable causes. Morphin in this quantity has been taken for a long time without unusual symptoms or premonitions of death. Unexpectedly its cumulative action concentrates on the nerve-centers, and death follows. This possibility is always present, even when small doses are used, and in most cases death is attributed to other causes. The morphin can be removed easily if the doses are divided and given at short intervals down to a small amount. Thus, a patient taking fifteen or twenty grains a day may not notice the withdrawal down to five or six grains.

It is essential in this rapid reduction to clear out the alimentary canal with salines or copious drafts of hot water. Sometimes a calomel cathartic is very good. Soda preparations are very useful, even when relaxation of the bowels takes place. An interval of twenty-four or forty-eight hours should elapse after the first withdrawal before another reduction is made. The amount should be determined by the condition of the patient. Usually one or two grains can be withheld, and if the remainder is given at night, the withdrawal symptoms are less severe. Placebos may be given if the mind is morbidly sensitive, but they should be nothing more than bitter tonics.

In this rapid withdrawal stage it should be the study of the physician not to use other narcotics as substitutes too early in the treatment. If while giving four grains of morphin a day cannabis indica or any of the bromids is given, the effects will be uncertain, both of the morphin and of the substitute. The fact should be remembered that in opium addictions narcotics neutralize each other's effects rather than intensify them. Thus, morphin and hyoscyamus given together are antagonistic. Either of these drugs alone would have a more decisive action than when combined.

The bromids also work in the same way. Larger doses are required to produce bromism when morphin is used at the same time, and its cumulative action is more severe and long continued. The same is noticeable in other drugs. Practically it is found better to abandon the morphin before the substitutes in later treatment are used.

Narcotics may be given in the morning when the morphin has been taken the night before, and it is customary in this rapid withdrawal to give the morphin at night, and to use the substitute during the day. Tinctures should be used with care at this time because of the danger of alcoholic addiction. Certain persons are very susceptible to the paralyzing action of alcohol at this period.

Some of the remarkable cases reported of the pain-

less withdrawal of morphin have been effected by simply substituting some alcoholic tinctures for the morphin. In the same manner the withdrawal of the morphin and the substitution of codein and other alkaloids, or laudanum or other preparations of opium, is simply changing from one addiction to another.

Many of the specific preparations contain some form of opium, the substitution of which for morphin is simply a change in the form of the drug. To abandon morphin and to depend upon alcohol in its various forms is not curative in any sense. The rule should be that no alcohol be used in the withdrawal stage.

The acuteness of the insomnia, depression, and neuralgia which follow the rapid removal of morphin should be treated by baths, hot and cold water applications, also massage. When the morphin is entirely withdrawn, many drugs may be used to lessen the acuteness of the symptoms, prominent among which are valerian, asafetida, hyoscyamin, cannabis indica, and the coal-tar derivatives. As a rule, they should be given in large doses, frequently repeated, until several doses are taken; then abandoned. No one drug should be given more than two or three days at a time, unless its effects are so marked as to demand its continuance.

The vegetable narcotics seem to be valuable in many cases, but do not all act alike. In some cases

they are very powerful; in others, they are of no value. The phosphate of soda is a valuable remedy, and can be used continuously during this period.

The rapid withdrawal stage should not last more than six or ten days. In some instances a much shorter time is practicable. The reduction of the morphin to four or five grains the first day, and the third day afterward its still further reduction to three grains taken at night, will be found practicable. Then, if possible, substitute deodorized tincture of opium, in proportionate quantities, the fourth night. The sixth night morphin can be reduced still further, and then abandoned on the eighth or ninth day. After this time narcotics which have been found effective are to be given at night. These can be dropped after one or two weeks without special suffering. Strychnin, quinin, and other active tonics are very valuable at this period. Faradism, massage, and confinement in bed all are very valuable means.

This method of rapid withdrawal will tax the therapeutic resources and skill of the physician to the utmost. Each case will vary widely in both physical and psychic symptoms. In one instance applications of water in the form of baths, hot applications, or spongings of the body will be effective. In another, feeding, confinement in bed, and personal attention by attendants are sufficient. In a

third case, exercise, mental diversions, and frequent change will lessen the intensity of the symptoms. In others, drug restraint and narcotism are demanded imperatively. The same diversity of symptoms will appear after the morphin is withdrawn, and the same skill to adapt the special means to the end will be required.

In the third method of treatment, the gradual reduction extending over a period of several weeks, much the same course will be pursued, only less rapidly. The morphin should be reduced to four or five grains the first few days of treatment. Then a slow withdrawal daily or weekly should follow.

Where the needle has been used, the difficulties will be increased because of the fascination which follows from the effects of drugs taken in this way. The rule is that the needle should be abandoned as soon as possible and the drug be taken by the mouth.

I have found solid opium to be better borne by the stomach than morphin. This, with the deodorized tincture, can be given in decreasing doses with good effect. This form of opium can be given concealed in bitter tonics, and, where the stomach will tolerate it, is valuable as a substitute, and can be reduced in strength without being recognized by the patient. In many cases it is practicable to abandon the morphin for this form of drug as soon as possible, and then to slowly or rapidly take this away. Opium

in the gum or powder is often efficacious as a substitute for morphin. The narcotism from opium in gum or powder is more prolonged and agreeable by the absence of stimulation, and the withdrawal symptoms have less of the mental and hysteric element. It is found to be less difficult to withdraw opium in the powder than morphin, and that in many cases the bad symptoms are less prominent in the withdrawal period.

Where the reduction is likely to extend over several weeks, owing to the hypersensitiveness of the patient and his disinclination to bear pain and discomfort, great attention should be given to the diet and regular habits of living, and also avoidance of all extremes of exercise, nervous excitement, overeating, and excesses of every kind.

It is important to increase the vigor and strength of the patient in every possible way. It is found that with increasing vigor the neuralgias disappear. Often iron and phosphorus tonics are very valuable for this purpose. The salines in some form are indispensable. The flushing of the alimentary canal by cathartics is equally important. Narcotics, as before remarked, are of little value, except in the very last stages, when the morphin is finally withdrawn.

A gradual system of developing the vigor and healthy functional activity of the body and at the

same time slowly removing the morphin is the plan to be pursued. In some instances the morphin is reduced by infinitesimal fractions of a grain daily, on the supposition that nature will accommodate itself to this slow withdrawal. Others substitute some mild narcotic early in the withdrawal process. This, in the author's experience, has been very unsatisfactory. The exact plan and method of withdrawal must vary with the patient and the physician.

Sometimes the surroundings have much influence. If in an institution where these can be controlled, the conditions for withdrawal may be carried out with mathematic exactness. The preferable plan is to drop the morphin in half-grains at intervals of ten days or two weeks, and to accustom the system to adapt itself to the reduced doses by continuing daily a fixed amount. In one case a grain was taken away every week until only a half-grain was used daily. The intervals after the first few days were passed without much suffering. At the last the half-grain was removed and bromids substituted for it. The second day hyoscyamin and trional were used with good effect. In a week or so the patient was able to do without any narcotic.

After the morphin is withdrawn the severity of the irritation and delirium is sometimes best relieved

after the second day by return to the drug again in some concealed form for one or two doses. An example of this was that of a morphinist who after the final withdrawal was intensely melancholic and delusional. This condition increased until on the evening of the second day a dose of morphin concealed was given. The relief and sleep which followed lasted twenty-four hours, after which substitutes were able to produce a degree of comfort, and the restoration was rapid and uneventful.

This course is not always followed by the same results. The patient will demand the same drug, not knowing what it is, and the skill of the physician will be taxed to find a substitute which will be satisfactory. Manias following the withdrawal of morphin can be broken up in this way, and also phobias, but great skill is necessary to prevent their recurrence. In one case of destructive mania from the withdrawal of morphin the drug was given, again breaking up the mania; then forced cold and hot showers were substituted, which prevented the return of the mental disturbances, and final recovery ensued.

After the crisis is past other and milder substitutes may be given with excellent effects. If the patient's mind retains consciousness of the conditions which have existed, this treatment is followed by renewed confidence and faith in recovery. In-

somnia should not be treated by hypnotics with any degree of regularity. The danger of another addiction is so great that it is unwise to use any of the hypnotics except for a brief time.

Tobacco should be stopped early in the withdrawal treatment. It always seriously complicates the progress of the case. After the withdrawal symptoms are passed its resumption is very commonly followed by relapse. Beef-tea and beef-extracts are unsatisfactory, and in most cases are nerve stimulants of decided inferiority, and seriously complicate the progress of the case. Fruit-juices and grain products, with milk, are the best nutrients which can be given.

Often an abdominal bandage, wet in either cold or hot water, has a soothing effect on the sympathetic nerves of the abdomen, checking diarrhea and gastric trouble. Cold water applications to the spine in the form of ice-bags are very serviceable.

The methods of treatment which have become popular both in this country and abroad are one of slow, gradual withdrawal of the drug; the other, that of rapid abandonment within four or six days. The former plan is used in all the large hospitals, and has many warm advocates. The latter is often used in asylums where hydropathic measures can be applied.

If it is determined to withdraw the morphin

rapidly, great stress is laid upon the use of cathartics at the start to wash out the digestive canal, and the use during the entire treatment of preparations of soda to prevent or neutralize the acidity of the stomach and bowels. This latter is very essential in all methods of treatment. Indications of either are met by phosphate of soda for the former and bicarbonate of soda for the latter, in five- or ten-grain doses two or three times a day.

A plan of treatment by the substitution of bromid of sodium deserves notice. After the amount of morphin taken has been ascertained and the alimentary canal has been washed out, the quantity is reduced one-half, and bromid of sodium substituted, beginning with fifty grains three times the first day, the second day increasing each dose 10 grains, and continuing this until the maximum dose is 100 grains given three times in twenty-four hours. The drug is then discontinued. The sedative effect that follows its use may last for two or three weeks, and finally passes away. The morphin is rapidly reduced, and on the third day is abandoned. The reflex irritation is overcome, and the patient is unconscious of any pain or suffering, lying in a quiescent, stuporous condition.

Having secured the sedative effect, the next object is to eliminate the bromid. This is accomplished by hot baths twice a day, and the use of spirits

of nitrous ether, acetate of potash, or infusion of digitalis. As the bromism passes off, some restlessness may follow, which is easily controlled by warm baths or any mild narcotic.

The sleeplessness which is very common from the withdrawal is peculiar after the use of bromid in coming on after midnight. The early part of the evening and the afternoon the patient is excessively sleepy, but after midnight the insomnia appears. This is treated with sulphonal and other hypnotics. The diarrhea is not prominent, and never lasts longer than one or two days, and does not require any astringent. The debility which follows from the bromid relaxation and the morphin withdrawal is treated with strychnin, one-twentieth of a grain three times daily. Strychnin should not be given during the bromid administration, as the two drugs are antagonistic.

Serious objections have been made to this treatment, and while its value is apparent, in certain cases it has not been considered a safe and practicable remedy. Bromidization of a sensitive brain is sometimes more serious in its effects than morphin itself. The effects of bromid sedation have been traced months afterward in low vitality, stupor, and general debility.

Dr. Levinstein's plan,* by the sudden withdrawal

* "Morbid Cravings for Morphia," Smith, Elder & Co. 1898

of morphin and the substitution of cold douches, alcoholic drinks, chloral, and bromids, is open to similar objections, and may be injurious in its after-effects on the patient in some instances.

Dr. Kellogg * has recommended a modified plan, in which morphin is withdrawn in two or three days and cold and hot packs substituted, with massage, acid drinks, and liquid foods. Douches and applications of heat to different parts of the body are given to control the withdrawal symptoms. This method requires special surroundings, and in large institutions is very valuable.

Another method, urged by a physician who claims to have large experience, is the diminution of the morphin one-eighth of a grain a day, and substitution of strychnin, cannabis indica, and chloral. This has not proved satisfactory, and is not applicable to every case. Large doses of quinin have also been given to alleviate the withdrawal symptoms, and occasionally its results are so pleasing that many persons suppose this to be a remedy approaching a specific.

To find a substitute or a drug which will completely and safely relieve the discomfort, uneasiness, and pain following the withdrawal of morphin is the dream of the credulous physician, and the boast of the charlatan and quack, but so far it is unrealized.

* "Journal of Inebriety."

The difficulty is that no two cases are alike, and while the effects of morphin are practically the same, the injury which follows from other anesthetic drugs varies widely in each case. In one case the bad effects of the drug used to lessen the irritation and reflex disturbances will not be apparent for some time, then it appears in some chronic state. In another case the damage from morphin will be noted in the higher brain-centers, and the effects of the drug used in the withdrawal will seem to intensify the condition. Bromidization in morphin cases often produces disturbances of the motor and sensory centers, and these continue for a length of time. In all probability some peculiar susceptibility exists favoring motor palsies, and bromidization fixes this state, and the patient has never the same use of the extremities afterward. A drug that would produce stupor and lessen the reflex irritation in one case would be a positive injury in another. In another case all attempts to control the withdrawal symptoms by a drug that will be effectual will be practically injurious and provoke dangerous symptoms.

A method of treatment by elimination, used by many persons, is very practical in many cases. This treatment is based on the theory that the continued use of morphin produces marked changes in the glandular secretions. When morphin is withdrawn,

there is resumption of these glandular functions, which follow in a irregular manner. First, perspiration and sneezing, accompanied with yawning; then diarrhea, at first half bilious, half fecal, and then watery; later, vomiting, in which bile and gastric juice appear; spermatorrhea, salivation, and muscular cramps follow each other.

Each glandular apparatus attempts to resume its normal function, and succeeds or fails in proportion to the degree with which these organs have been impregnated with morphin. The mechanism appears to be that of an effort to throw off the morphin in the epithelial and endothelial desquamation of the impregnated mucous membrane. Assuming this theory to be correct, the stronger the reaction of the organism, the more abundant will be the desquamation and the more rapidly will organic regeneration be brought about. The convalescence will be shorter, the system be more thoroughly renewed, and the chances of a relapse lessened.

The obvious indication from this theory will be the rapid elimination of the altered glandular elements, provoking the appearance of each secretion and exciting glandular activity by every known method, while lessening the quantity of morphin at the same time. Hence, purgatives, diuretics, and diaphoretics should be used concurrently. Under the influences of these medicines the quantity of morphin

may be rapidly diminished, and the resumption of glandular activity will begin before the removal of the drug is complete. The results have proved in many cases that the withdrawal symptoms were less intense, the heart's action less labored, and the pain diminished. In persons with diseased hearts no signs of heart failure or syncope have followed this treatment.

It is urged that the withdrawal of morphin is quite different from the elimination of the drug from the system. If the latter is not carried out, convalescence from the former is impossible, and fatal results may follow. Elimination is therefore considered equal in importance to gradual withdrawal. With active elimination at the start, the rapid and harmless withdrawal is possible in all cases; but without this, the slow removal of morphin leaves the patient exposed to accidents and serious dangers.

In this form of treatment sulphonal, bromid, and chloral are found to be injurious and impracticable. Phosphate of codein has been very warmly praised. Spartein and caffein are very effectual in many cases. The method of treatment which has been found most practical by the author is that of gradual reduction, going from stage to stage,—now slow, then rapid,—being governed by the condition of the case, the history, and pres-

ent conditions. It may be divided into three stages:

First, the preparatory stage, in which an effort is made to ascertain the smallest amount of morphin which can be taken without discomfort to the patient. This sometimes requires an extended observation of a week or more. Many patients use far more morphin than they imagine, being careless and inaccurate as to time, and the quantity taken. Others intentionally deceive themselves and others, boasting that they only take a certain amount, when in reality this is only the minimum. Having secured the proper surroundings and control of the case, the patient's statement of the amount he is taking is accepted and he is given a like amount for the purpose of testing his accuracy. If this is found to produce marked narcosis, it is evident that it is more than is essential for comfort. If he is restless and uneasy, it is less than his usual dose.

These conditions will vary largely the first two or three days. The fact of coming under treatment in strange surroundings and under new conditions produces a psychic condition which will derange the nervous system, requiring more than the accustomed dose of morphin at first. After the patient has acquired a degree of confidence and become familiar with the surroundings, an approximate estimate can be attained. If it is found that he is comfortable

on eight or ten grains a day, this is assumed to be the average quantity necessary to produce reasonable sedation.

Having ascertained the character of the case, the next question is the gradual or rapid withdrawal of the drug. If the addiction is an acquired one in a person previously well, and free from neurotic strain and organic disease, and the time of addiction is limited to two or three years and associated with the use of spirits, a rapid withdrawal is the most practicable. The conditions present are always neurasthenia and anemia and various functional disturbances, which are made worse by concealment with drugs and the narcotism of morphin. Having found the amount of morphin the person takes and corrected in a measure the digestive disturbances which exist, the second stage of treatment begins. The first step will be to abandon the morning dose of morphin and to concentrate the amount given from noon to six in the afternoon, rarely giving any after six or seven o'clock in the evening, the object being to get the narcotic effect during the night, also to break up the plan of its previous use. Where it had been taken in small doses at short intervals, larger doses are given at long intervals. If the absence of morphin in the early morning causes suffering, baths are given, stimulating foods, and hot milk or acid drinks if the stomach will bear them. If the discomfort is severe,

opium pills of half a grain or one grain may be given for a few days, but not continued long enough to establish a desire for it.

When the system is accustomed to this change, the morphin may be reduced one-half the usual dose at once. If ten grains are taken daily, five grains will suffice. If given by the needle, the diminished amount is seldom recognized; if by the stomach, the partial withdrawal is more apparent.

Later, according to the condition of the patient, a still further diminution is made, and if the suffering is marked, a preparation of cinchona bark, usually an infusion in half-ounce doses, combined with ten drops of deodorized opium, is given. Most cases bear reduction without any particular discomfort down to one or two grains. Then increasing doses of opium with cinchona become a good substitute, and the morphin can be withdrawn at once.

If the needle addiction is present, the use of the needle must be kept up with regularity, occasionally substituting one or two grains of dionin in place of the morphin.

When opium is not borne well by the stomach, pills of lupulin, black haw, valerian, cannabis indica, and hyoscyamus may be alternated until one is found having narcotic properties sufficient to lessen the extreme irritation. Baths are to be given every day during the reduction period, and phosphate of

soda in small doses should be used two or three times a day.

In from ten to fifteen days the morphin can be entirely abandoned; then comes the third stage of treatment for the withdrawal symptoms. The effort here will be to diminish their intensity, particularly that of insomnia and restlessness.

Prolonged hot baths, either in a tub or from a shower or by packs, are very useful, and very satisfactory in many cases. Nitrate of strychnin is in some cases of great service, particularly where the needle has been used. Beginning at one-thirtieth of a grain, the amount may be increased up to one-tenth of a grain given three or four times a day. If it produces excitement, both muscular and mental, it should be discontinued. Phosphoric acid with nux vomica are remedies whose effects are very pronounced. Extract of bull nettle, given in fifteen- or twenty-drop doses, has been found very efficacious in removing the restlessness and encouraging sleep during this stage.

Care must be taken of the diet. Small quantities of food should be given at short intervals rather than full meals at stated hours. If the bowels become troublesome through dysenteric discharges, increased doses of cinchona with capsicum will be useful. Tea and coffee during this period have been in some instances medicinal in calming the restlessness and

allaying the discomforts. In others, they are both stimulating and irritating. Cocoa seems preferable, and should be used often, when found agreeable.

Electricity has been found valuable in some cases; in others, an irritant. The static current seems best adapted, and is often followed by decided rest and relief from discomfort. Electric baths are very highly praised by some authorities, but it is probable that their value depends upon the peculiarities of the person. Experience differs as to its practical use as a general remedy.

The withdrawal period may last from four to ten days, sometimes longer. When it has passed away, the patient recovers in a large measure and only suffers from general weakness and depression of spirits. Care should be taken at this time not to use any drugs that are known to the patient, particularly those that are likely to produce pleasing effects and be taken afterward for their quieting effects.

The muscular delirium, or intense desire to use the muscles of the legs in walking, is overcome by massage and vibratory machines that shake and exercise the muscles. A few minutes of this seems to expend the muscular energy and to take away this uneasy feeling.

The peculiar delirium cannot be overcome by exercise in the open air without danger of reaction. In one case walks of two or three miles a day for a

time resulted in extreme prostration and relapse. In another case excessive exercise in a gymnasium was followed by the same result. Limited indulgence of this desire is helpful, with massage and hot and cold baths daily.

Warm baths at night, if not too stimulating, followed by rubbing, seem to be more sedative than in the early stages of treatment. Mild exercise in the open air is often of great value, the difficulty being that the person is liable to overexert himself and suffer from muscular fatigue. Short rides and walks are of more advantage, the intervals being passed in a reclining position on a couch.

In most cases, to remove the clothes in the middle of the day, darken the windows, and go to bed with all the conditions favorable for sleep, is a most excellent measure. After a short time lengthening periods of sleep will follow.

During the withdrawal period the patient should see very little company, do no business, and have no strain on the mind if it can possibly be avoided. In some cases, particularly in those who are overfed and inclined to corpulency, a Turkish bath with mild rubbing every day, either in the forenoon or early in the evening, will be found very advantageous. In a thin, spare person, with acute sensitiveness and hyperesthesia of the skin, showers and hand massage are of great value. In the absence of these meas-

ures, sponging with warm salt water, or with water containing four ounces of vinegar to the gallon, is very soothing. For the various anesthetic and hyperesthetic conditions, also for the local neuralgias, hot and cold applications are very useful.

After opium or morphin has been discontinued and the withdrawal symptoms have partially passed away, some conception of the changes taking place in the system, due in whole or in part to morphin, will be apparent. Also how far the functional depressions and conditions associated with morphin will demand its use again.

If the morphinism began with neuralgic states or rheumatism, neurasthenia or insomnia, we shall have a condition of disturbance of the nervous system which may very likely come again into prominence from the slightest exciting cause. These conditions must be anticipated, and early states of exhaustion expected to recur unless prevented and antagonized by surroundings of life and methods of living.

Much of the after-treatment must depend on the condition of the patient, and should be directed to create better nerve and cell nutrition. This is very often accomplished by massage, graduated exercises, and the use of such tonics as phosphorus, arsenic, quinin, iron, or strychnin.

Where the stomach is impaired and foods are not readily assimilated, oil inunctions are valuable.

Care should be taken not to produce too sharp an appetite in the early stages of convalescence, because of the difficulty of assimilating the food. Reconstruction goes on slowly and cannot be hurried by stomach tonics. Foods should be given at short intervals, and in small quantities, followed by periods of rest.

Several quite eminent authorities have urged that morphinomaniacs should be treated hydropathically after the first four or five weeks from the withdrawal of the drug. This treatment should consist of warm showers several times a day, gradually increasing in coldness up to ice-cold water. The claim is that the shock to the cutaneous nerves acts as a tonic, quickening the vital forces and increasing the activities of the circulation as well as elimination. It is clear that in many instances this treatment has produced excellent results.

A prominent case went the rounds of the medical press a few years ago, in which the principle of the methods of treatment was cold showers. The patient was given from two to four showers a day with brisk rubbing. The morphin was removed in the first week and no treatment was given except that of cold water and rubbing. The recovery was rapid and without any untoward symptoms. The usual depression and withdrawal symptoms were absent. It was evident that this was not a typical case, although

it showed clearly the possibilities of treatment by hydropathic measures.

This represents in outline some general facts concerning the withdrawal of morphin and the general after-treatment of a large number of cases.

Another class of morphinists, where a long, gradual removal of the morphin is deemed most advisable, are those of the neurotic type. This distinction is very practical in many cases, particularly in the lines of treatment, which will vary materially, with reference to the early and later neurotic states and conditions of the patient. The method of removal of the drug, and the after-treatment, also the general principles to be observed, and the conditions and symptoms present, require more specialized study and care.

Persons of this class are those in which there is a strong predisposition to exhaustion from overwork, and who are often unequal to the wear and tear of life, and have used morphin for relief of the fatigue symptoms; also those in whom morphin was used to cover up some organic change and lesion attended with severe pain, and others in whom the morphinism grew out of physical injuries and exhaustive diseases of the general nervous system. Such persons should be treated on the gradual withdrawal plan.

The first preliminary period should begin, as be-

fore stated, with an exhaustive study of the conditions which have been influential in the origin and growth of the use of morphin. To this must be added a very clear clinical study of how far morphin has damaged or perverted the functional or organic activities of the body, and the present state of the organism. This period should be carefully considered. The amount of morphin taken and its peculiar action, how far it has deranged the nutrition and disturbed the normal activities of the body, and the exact amount used, both as to time and quantity, all demand attention.

Having controlled the surroundings and secured the confidence of the patient, the withdrawal should be from an eighth of a grain to a quarter of a grain a day, changing the time of taking it, and using no substitute drugs until the amount taken is reduced to three grains or less a day. In the mean time soda preparations and mineral cathartics may be given regularly, with acid tonics, effervescing mineral salts, and daily baths.

The withdrawal of the morphin down to three grains or less should be done in the first ten days; then, after the system gets accustomed to this amount, a reduction of a quarter or half a grain should be made at intervals of a week, and the dose continued until the system becomes accustomed to it without particular suffering.

The uneasiness and discomfort which may appear from the withdrawal are to be overcome by baths, diversion, limited outdoor exercise, and massage. If there is anemia, some preparation of iron may be given for a few days at a time, then abandoned. All sedatives are to be given in the afternoon and early evening. Attention should be given to the bowels, to prevent accumulation of any morbid matter, and to keep them active every day.

Sometimes faradism is of great service in these cases. The current is applied over the spine and the back of the neck down, once or twice a day a few moments at a time. Some writers believe that applications of water, either hot or cold, are more efficacious for these conditions.

When the amount of the drug has been reduced below two grains, it is possible to use tonics, beginning with the mild preparations of cinchona and gentian, being always careful to prevent them from stimulating the stomach and creating abnormal hunger, always reducing the drug and increasing and changing the tonic cautiously.

Care should be taken not to use spirits, and to avoid all preparations of opium except in a concealed form and in single doses for a specific purpose. At a favorable time when the patient is in the best psychic and hygienic condition, the drug can be taken away at once and deodorized tincture

of opium substituted in decreasing doses, combined with bitter tonics to conceal its taste.

Later, this can be substituted by bull nettle, pasadena inflorata, or any of the preparations of hops, valerian, or narcotics of this class. Cannabis indica can often be used with very good effect, especially for the temporary removal of the worst symptoms.

No effort should be made to keep the patient continuously narcotized, but rather to withdraw all narcotics and sedatives, substituting tonics and hygienic measures such as baths, massage, and diversion. The hysteric element so often developing in these cases requires mental treatment as often as physical.

After the morphin is withdrawn the same general treatment should be pursued, varying only from the particular conditions and circumstances of the case. If on the removal of the morphin some old neuralgic condition reappears, it must be met with tonics and mild sedatives. The time for the gradual withdrawal may extend over two or more months according to the circumstances and conditions.

The effort of many physicians to treat all persons alike by the same medicines or needle injections is empirical. The recovery of some cases treated in this manner is due largely to unknown causes. In all cases there is a psychic element which should be recognized and treated.

The impressions are vivid, and exert a very positive influence, whether they come from a needle or the application of unknown drugs administered in a mysterious way, or are due to some motive of alarm or desire which has been presented to the mind.

The after-treatment should combine nerve and mental rest, with tonic diversions, of which travel, change of climate, and hydropathic measures are essential. In one case a lawyer, after recovery, spent four years in the country before he resumed his profession. A physician went to mining in the West, and returned two years later fully restored. In many instances a radical change of occupation and living is almost specific for final cure.

Dr. Berillon,* of Paris, has had much success in the psycho-therapeutic treatment of morphinism. He recognizes a distinction between morphinism and morphinomania. In one, morphin is occasionally used to relieve some feeling of discomfort, misery, and pain; in the other a dominant impulse pervades the entire system for relief from pain and misery.

He believes that in the first classification there are temporary conditions of anesthesia or hyperesthesia which may be overcome by a mental impression; also that the will can be aroused to control fully the depression and pain impulses. In the other case the

* "Annals of Psychological Medicine." 1898.

mind is a prey to an exaggerated, hyperesthetic fear of suffering. Under these circumstances all thought and action are concentrated to avoid the pain and prevent it.

The morphinist has the delusion that he is able to control his condition and can stop the use of the drug at any time. The idea of free-will is always present, but the inability to exercise it is never explainable in any way. While the morphinomaniac rarely speaks of his ability to stop, or boasts of his power to do so until he has secured relief from pain by the drug. Then all feelings of alarm and excitement pass away the moment it is secured.

The morphinist is usually irresolute, changeable; his nutrition, his intellectual faculties, and his purposes in life are doubtful and uncertain. Suggestion may be tried, and the idea of certain health may become fixed in his mind. The essential part of the treatment is to exalt the desire to be free from the drug, and to make the thought of its use odious, and so rouse all ambition and purpose to discontinue it. The suggestive treatment is pressed on the mind of the patient at frequent intervals, while the morphin is reduced rapidly and by concealed methods. A process of demorphinization takes place in which reliance on the drug is diminished and dependence on the suggestion is increased with each effort.

A number of cases are cited in which this method of treatment was successful, and the conclusion reached that the cures by this means were more permanent than those of any other. The period of convalescence was shorter and the malaise which followed was less prominent and troublesome. Still, it is evident that this method of treatment is limited to recent cases and requires peculiar, persistent treatment on the part of the operator as well as a very sensitive subject to deal with.

It is common in the practical treatment of these cases to substitute placebos and get the same results, showing that certain cases may be permanently impressed by suggestion; organic changes may follow employment of this aid, but as a specific it cannot be depended upon.

The morphinomaniacs are moral paralytics, hence are not easily controlled by suggestion for any length of time. The treatment by suggestion is very valuable, but it requires frequent repetition and continuous reiteration to produce any effect. Often the effect of the needle with water only is more powerful than suggestion. There seems to be attached to this method of medication mental certainty which no other means can excel. The use of the needle with simple hot water injections continued for a long time has proved very valuable.

The ordinary cases of morphin require at least

six to ten months' treatment. Any less time is seldom followed by permanent results. The first two months are occupied in the removal of the morphin and with the reduction of the acute symptoms. The patient then begins to feel returning strength, and assumes that he is cured beyond danger of relapse. At the end of the third month restlessness and irritability appear, which he attributes to the surroundings, and perhaps to the want of confidence in him manifested by his physician and friends. He believes the remedy is freedom from all restraint and resumption of his former occupation and surroundings. He will resort to coffee, tea, and, perhaps, stronger stimulants, to overcome this restlessness. When under treatment, bromids or some of the milder narcotics, with frequent baths, will be found necessary. The restlessness will pass off, and return again in a few weeks, taking on perhaps a different form.

Sometimes bronchitis will appear, with insomnia, and distressing melancholia, and other neurotic conditions, all of which disappear suddenly, showing their neurotic origin. These nerve storms are periods of danger in which the patient is liable to relapse. The treatment should extend over many months so as to cover these attacks. If the case can be conducted safely over these storm periods, the prognosis is hopeful. To discharge a patient after

withdrawal of the drug is simply a waste of time and effort. If he continues well, it will be an accident, an exception to the rule. Where the symptoms are complex, a year is the shortest time, under the most favorable circumstances, for permanent cure.

To withdraw the morphin in ordinary cases is the least difficult measure in treatment. While the symptoms of withdrawal may be unpleasant and startling, they are self-limited, and yield readily to proper treatment.

A few weeks after the withdrawal of the morphin the appetite is excessive. At the end of the second month the patient presents every indication of restoration, with unusual confidence in his strength and vigor, and believes that he will never relapse. If he has been under the care of a nurse up to this time, he resents any further assistance and aid in this direction, and believes that he has moral as well as physical strength to take perfect care of himself. Whether he stays under supervision or has full liberty to come and go, or wherever he goes, the result is almost certain relapse.

The last few months may be spent away from an asylum under the care of a physician, but it should never be forgotten that the removal of the morphin, if followed by relapses, always produces discouragement and diminished vigor of will-power with increased hopelessness of cure. When there is a

hereditary tendency, all the conditions of exaltation and depression should be combated by continuous care and medical treatment. When the disease has affected the brain to the extent of producing organic weakness, the time of treatment should be greatly lengthened, and the protection of the patient against temptation and conditions of mental and physical debility is absolutely necessary.

The central fact to be remembered is that the withdrawal of morphin is not the cure, but only the beginning. A long period of building-up and restorative treatment must follow before the brain and nervous system can attain the degree of vigor essential to control the neurotic symptoms which follow.

Not infrequently periodicity of insomnia, with extreme restlessness, appears after the withdrawal of morphin. Such attacks grow less and less with the increasing vigor of the person; although in some instances they continue for a lifetime, yet they will become more and more under the control of the will.

Of the various theories to account for the withdrawal symptoms in morphinists, Dr. Waugh,* of Chicago, suggests the following explanation: "When any toxic agent is taken into the system, there is developed in the body an antidote or a counter-poison. If the dose of the drug taken be increased slowly, the power of the system *pari passu* to elab-

* "Medical World and Alkaloid." 1896–1899.

orate a corresponding dose of the antidote increases, which lessens the toxic effect. If the taking of the poison becomes habitual, the production of the counter-poison becomes also habitual. If, then, the taking of the drug be suddenly stopped, the elaboration of the antidote does not necessarily cease at the same time, because its production has become a habit. Hence, what we term the 'withdrawal symptoms' following the disuse of the drug-habit are really symptoms of poisoning by the systemic poison, which no longer is needed to antidote the drug taken, and exerts its toxic action on the body producing it. If this view is correct, we will find when the habitual drug is withheld symptoms due to the leucomain. A study of the disorders of the intestinal canal shows that two toxic bodies are present, known as the atropin alkaloid and the muscarin alkaloid. Whether it is in the intestinal canal that the toxins in narcomania are formed, I do not know, but I believe that this is the laboratory where the toxic principles of uremia, diabetes, and many other affections are compounded. It is probable that the toxins in morphinism and other drug states are prepared in the bowels. This would seem to be confirmed by the results of intestinal canal antisepsis."

Assuming Dr. Waugh's theory to be correct, certainly the most direct antidote to the leucomain will be the drug taken habitually, and hence the gradual

withdrawal is better than the sudden stoppage; but our experience has been that it is still better to substitute for the drug some other antagonist of the toxic leucomain.

Some cases are given in which the treatment was based upon this theory, and the result was very satisfactory. The principal fact of treatment was sharp elimination by calomel and magnesia and antiseptic drinks containing eucalyptol and zinc sulphocarbolate. All experience sustains the assertion of the necessity for keeping the alimentary canal in a septic condition during the withdrawal period and for a long time after. In connection with this, elimination through the skin and urinary organs is also essential.

The question is often asked, Is it possible to treat morphinism at home? This, of course, will depend upon a great variety of circumstances. A prominent man of wealth insisted on home treatment, and his physician, having some knowledge of such cases, consented on the condition that he would confine himself to a single room for a stated time and under no circumstances leave it. He was placed in charge of an attendant night and day, who kept strict surveillance over him, not allowing him to go out or to hold any communication with any but the members of his family. His clothes were taken away from him by stealth and found to contain morphin in the

hems and lining. This he had secreted, thinking the doctor would deprive him of the drug and thus increase his suffering. Massage and hot sponging were given daily. The morphin was removed, the withdrawal symptoms were slight, and the patient made a good recovery. Notwithstanding his desire to abandon the drug, he tried various means of securing it surreptitiously by bribing his attendant. The difficulty in such cases would be apparent to any one.

In another case a lady consented to go into confinement in her own room under the care of a special nurse. After a few weeks' treatment it was found that she was procuring morphin secretly. An examination disclosed the fact that during the night she suspended a cord from her window to the ground, and the gardener attached to the end of it a small package of morphin, which she drew up and concealed, using it in small quantities unobserved even by a careful trained nurse.

These cases are probably not common, but they indicate the difficulties in conducting successful treatment in the home surroundings and ordinary conditions of life.

Specific drugs for home treatment are always fraudulent. Persons who claim to have been cured by these means have found more difficulty in escaping from the specific than from morphin. Elab-

orate plans of treatment in which drugs are given week after week, each bottle said to be different from the other, are simply the withdrawal plan in which morphin or some form of opium is the basis. These alone, without other treatment, will fail; and if given to morphinists indiscriminately, no matter what the conditions are, cannot succeed.

One of the essentials of treatment is change of surroundings and conditions of living. The withdrawal of the drug demands a revolution of conduct, act, and thought. New scenes and surroundings are helpful for their diversive effects. The mind must be led out of itself and turned away from old conditions and dependencies.

While home treatment is possible in the morphin addiction, it is certainly a very tedious, long-drawn-out, and doubtful experiment. The physician cannot give the attention necessary to the patient, and the patient cannot see the necessity for a trained attendant who is occupied but a very small part of the time, and the means and measures are so commonplace that the patient is confident that he can do it himself. The egotism of the morphinist and his constant introspection make him very difficult to reason with, and harder to manage in familiar surroundings.

The possibility of having treatment and doing business at the same time is also exceedingly doubt-

ful. In some cases it is urged that the mental diversion of attending to business, such as correspondence or light oversight and direction occupying only a short time every day, may be helpful. While it is possible for the patient to abandon morphin under these conditions, it is not likely that any real and permanent change will be accomplished. The morphinist must give up all work and business and place himself in the hands of his physician if he would abandon the drug.

The after-treatment with most men may be equally perilous at home, though it may be carried on with success where some light business can occupy a small part of the time. Each case should be governed by the conditions present and the vigor of the patient.

In some instances travel for a few months, visiting foreign countries in a leisurely way, is the best possible tonic and nerve rest. In others, it is the worst experiment that can be made. It depends upon the condition of the patient.

For some, idleness, seclusion on a farm, in the mountains, or at the seaside, removed from every form of excitement, is most helpful.

Professional men who have been very actively engaged, and can only be contented when occupied, should go to the country and engage in horticulture, or some class of farming that would divert their

energies and rouse them up along new lines. Often the most successful cures from the morphin addiction have been attained by the patient's spending a year or two on a farm or in the mountains away from the scenes of his former activities.

A chronic morphinist who had been treated several times for his addiction, and had relapsed as often, went out on the plains and became a cattle ranchman. He recovered, and is now a strong, vigorous man. Others have gone out to the mining regions, roughing it, living under greatly changed conditions, sleeping in the open air, and having perfect nerve rest.

A noted lawyer, who in the height of his popularity suddenly became an opium-taker following a long addiction to alcohol, after treatment went out on an exploring expedition in the Government service. The change of scenery and methods of living, with severe muscular exercise, made a complete revolution in his life. He recovered, abandoned his profession, and is now one of the most eminent Government officials in the geological service. Had he resumed his profession, relapse would probably have followed sooner or later.

A physician who was a morphinist from overwork and exhaustion tried home treatment several times without success, then went to an asylum, and, after restoration, joined a surveying party for a new rail-

road in the far West. He made a good recovery, and came back two years after, resuming his profession, and is now a leading man in the community. His recovery in this case was due altogether to the long-continued change of life and surroundings in the West.

As a rule, all brain-workers who become morphinists should, after withdrawal of the drug, give up all intellectual work and become muscle-workers as far as possible for a long time. Teachers and women, also persons with highly sensitive nervous organizations, should give up all occupation in which there is strain on the nervous system.

A noted New York merchant, after a morphin addiction of two years, upon recovery, by advice of his physician, engaged in flower culture, superintending the growth of plants and working constantly, abandoning all his previous business connections and never leaving home. In this way he recovered, and resumed business two years later a strong, vigorous man.

Within the last few years, through the advice of physicians a number of morphinists and alcoholists of wealth have been persuaded to retire to the country, buying abandoned farms in New England and giving their time and energies to build up beautiful homes and farms. In many instances the most excellent results have followed. Many have become

restored, and are now valuable, useful citizens. Other persons of this class have gone to Florida and the southern climates and have engaged in fruit and cotton culture, and continued strong and vigorous. This change is the best possible treatment for a large class of persons.

CHAPTER VII

OPIUM-TAKING; ITS PREVALENCE; DIAGNOSIS

Use of Opium. Differs a Little from Morphin. General Symptoms. Different Opinions of the Danger of Opium-taking. De Quincey's Delusions a Slow Degeneration Following Its Use. The Psychic Symptoms Less Prominent. Pathologic Symptoms. Effects on Animals. Opium-smoking; Its Fascination. Number of Persons Suffering from Opium-smoking. Prognosis. General Treatment. Delirium from This Source. Delirium from Morphinism.

THERE are persons in almost every community who use opium in the form of pills or powder. Many of them never come under medical care except for derangement of digestion, constipation, and general debility. They are usually neuropaths and elderly persons suffering from various troubles for which opium is found to give relief. Such persons have rheumatism, neuralgia, migraine, hepatic or renal colic, dysmenorrhea, and a host of other troubles. Others use opium for insomnia or to lessen grief and mental suffering, giving it up when the causes disappear. In many instances opium is used as a household remedy for all pains and discomforts, and is usually abandoned without any effort.

There is no doubt that from these sources many persons become permanently addicted to its use.

As in morphinism, persons with a neuropathic disposition have a continuous craving for some drug which will give relief, and opium is found to accomplish this purpose with the least discomfort. Often physicians called to treat some acute disease find the patient to be an opium habitué of long standing. In such cases several difficult questions call for an answer: Thus, How far is the acute disease dependent upon the opium used? Can the disease be treated irrespective of the opium addiction? Will the removal of the opium complicate or diminish the acute affection?

It is evident that the treatment of acute inflammations in opium addictions is unsatisfactory, and that such cases are likely to end fatally under any sort of treatment. It should always be remembered that in these opium cases there is retention of effete matters and states of poisoning that complicate all forms of treatment. The accidental or occasional use of opium may continue for years before it develops into an addiction. Many persons use opium at intervals for many widely diverse conditions, giving it up without suffering and resuming it again for real or imaginary causes. Others use opium in small quantities daily, never exceeding a certain amount. In such instances there are few symptoms to indicate the condition except general anemia, mental listlessness, with a disposition to sleep. Un-

less morphin, spirits, or cocain are used, associated or alternated, the person is able to continue the use of opium without much change of his accustomed manner of living. Gradually changes of the higher moral faculties become apparent. Somnolence, irritability, peevishness, and dishonesty in little matters appear, the last particularly where it concerns the use and procuring of the drug.

Where opium has been used a long time, changes of the skin appear; a yellow parchment-like color is characteristic, with cutaneous eruptions and change of color of the hair and a general worn, exhausted appearance. In many persons these and other symptoms are so prominent as to be called opium cachexias. They are practically described in the term marasmus, and may go on for many years, suddenly terminating in fatal pneumonia, gastritis, or erysipelas.

It is also clear that opium habitués do not have the same mental disturbances noted in morphinism. Instead of stimulation and exaltation there is quietness and mental rest; seldom any agreeable visions and pleasing hallucinations or periods of vivid imagination fill the mind. De Quincey's experience of soaring to Alpine heights, of time annihilated and eternity present, and the recollection of events of the past all passing through the mind with intense vividness and pleasure, are practically unknown to

the opium-taker of to-day. On the contrary, the opium habitué rarely experiences more than a sense of good feeling and comfort. All physical and mental unrest disappears and a torporous state of quiet supervenes. In some cases short, fitful sleep is accompanied with transient dreams of joy or suffering. After a short time these pass away, then only oblivion and euphobia follow.

When the drug is withdrawn in the early stages, general malaise, headache, and nausea follow. These are at first removed by coffee, soda, or spirits. After a time these symptoms increase to such an extent and become so painful that the drug is resumed. Many persons have such confidence in the power of opium to remove all painful symptoms, whether from its use or other causes, that they take great pains to keep a quantity concealed about their person. When opium has been used many years and chronic conditions follow, general feebleness of the muscular system and tremors are common. Some authorities believe that in these cases, if the superficial reflexes are absent there is impending ataxia and neuritis. Many of these chronic cases have muscular disturbances which closely resemble pronounced ataxias. The heart also exhibits functional and organic changes, and attacks of pseudo-angina pectoris, with general precordial anxiety, are common symptoms in the later stages.

The opium-taker is less secretive and more bold, and has less pride of character after a long use of the drug. In the treatment the same general measures are to be used as in morphinism, only more specialized, and varied according to the necessity of the case. The rapid or slow withdrawal is to be determined from the history and condition of the patient. Thus, in one example, a man who had used opium for twenty years and whose mind was somewhat disturbed, the opium was removed at once. The shock to his nervous system and the suffering which followed produced an antagonism and disgust for the drug which were very effectual. In another instance of about the same character the opium was removed in gradual stages, with much less suffering and equally good results.

In many instances the reduction of opium beyond a certain point is a question of great practical importance. Thus, in old age and some forms of chronic disease, and where the drug has been used for many years without any serious injury, the question of complete withdrawal is one of doubt, particularly where the possibility of relapse is almost certain from the conditions which will follow its removal. It is also a question whether life may not be prolonged by small doses of opium given regularly with great attention paid to the elimination of the poison products.

The English Opium Commission brought out many very curious facts supporting the statement of the conservative properties of opium. Sir William Roberts affirmed that, among the twenty or more active principles or alkaloids of opium, narcotin or anarcotin had a real tonic value. It has been asserted that opium in which this alkaloid was prominent is an antiperiodic, and can be used with little or no danger with the same frequency as quinin. It is evident that some of these alkaloids have some value which is yet to be studied. This fact would explain the possibility of the crude opium in gum or powder being used so long without marked poisonous effects.

Whatever course may be followed in the withdrawal or medical treatment of these cases, there should be a thorough recognition of the two conditions present—namely, starvation and poisoning. Both states may exist in varying degrees, and all remedial measures should be directed to overcome or lessen them. The opium-taker is very susceptible to spirits, and will very often abandon the drug and become an alcoholic; hence the danger of using remedies containing spirits or alcohols.

The opium-eater rarely consumes such large doses as the morphinist. Most chronic habitués seldom consume more than ten or twenty grains a day. In exceptional cases double and triple this quantity may be used, but not for any length of time. There

is in these large doses much danger from a cumulative action, and sudden deaths are common. In doses of from five to ten grains many persons live on for years with only general symptoms of progressive decline of all the organic functions, beginning with the higher moral brain and extending down to the other organs.

There are some distinctions worth noting between the physiologic effects of opium and morphin. While in a general way there are many resemblances, particularly in the termination, yet the beginning and progress vary widely.

The Chinese nation has for centuries used opium until it has become a national addiction. There seems to have been no special racial degeneration due to this source, but we know very little about the heredity and environments of this race.

Apparently in all cases the use of opium is followed by a subjective state of mind making the sensations of life pleasing and satisfactory for a time. This euphoria following the use of opium is more or less stationary for several hours, during which a degree of serenity and equipoise of all the faculties, active or passive, that relate to the temper and moral feelings exists. Sometimes the imagination is stimulated for a brief time and runs on in a dreamy, visionary way. Not infrequently the intellect seems exalted for a time, but this is at the expense of its

strength and endurance. It is very doubtful if any one under the influence of opium is capable of greater intellectual vigor, although it may appear to be so.

The idealization which De Quincey gathered about opium has been misleading, and undoubtedly has done a great deal of damage. As in morphinism, the higher ethical senses of the opium-taker are soon impaired. Volition is diminished and the capacity for active muscular exercise or energy of any sort is lessened. The appetite is disturbed and nearly all the functional activities are lowered. Mentally there seems to be a sort of automatism, in which impressions and thoughts of the past come to the surface and remain for a time. No new thoughts or new levels of intellectual activity are attained, and one of the most marked conditions is that of a tendency to live apart from others, to shun companions, to avoid social engagements, and to ignore comradeship or natural affection for those who are entitled to it.

If he is found in any company, it is generally with those below him and less educated, moral, and refined; he becomes careless of the decencies of life. A degree of melancholia comes over him when the effects of the drug pass off. He sleeps poorly, has frequent naps and fitful spells, loses flesh, his relish for all exercise and activity is lost, his eye becomes lusterless, and his manner and air are cringing and shrinking. In appearance great changes take place;

his habits, appearance, and clothing show indolence and carelessness. His pride of character is lost, and he goes shrinking through life as if he were a criminal, and being pursued.

There is in these cases a steady devolution. In some cases it is slow and not easily recognized at first; in others, rapid and marked. The morphin case is on a parallel road. The effects of the drug are stimulating, satisfactory, and rapid. There is at first a sense of completeness and satisfaction and an egotistic feeling that the brain is at its best, that intellectuality and muscular vigor are improved and some condition of ideal health has been created. This is of short duration, and is followed by misery and wretchedness, which demand a repetition of the drug before relief can be obtained. The will sinks rapidly before these physical impulses and all reason is lost in the intensity of the desire for relief. Where the drug is injected by the needle, the relief is so rapid and the impression so pronounced as to dominate every other condition.

In the early stages the system remains quiet after the opium has been entirely withdrawn, and only from some special exciting cause does the desire for the drug reappear. Each use of the drug is followed by greater demand for it. The period of stimulation diminishes and the exhilaration and comfortable feelings grow less and less, until finally the

drug has to be given or is taken at rapidly decreasing intervals.

The opium-taker is never fully conscious of the danger of his addiction or the damage that follows from its continued use. The morphinist after the first period of satisfaction from the effects of the drug is filled with dread at his condition. He will talk about stopping and of the misery of his condition, and devise means and methods to escape, all of which will fade into thin air when the effects of the drug pass away. The morphinist often attempts substitutes, and will enthusiastically try new remedies and specifics, and will reason with some acuteness about his condition, then relapse to the drug with the slightest temptation. On the other hand, the opium-taker has no dread, never uses substitutes or new remedies, and makes no effort to give up the drug.

Intellectually, the morphinist may appear less affected than the opium-taker, and may be able to conceal the condition. Beyond this the nutrition suffers, the energy of the brain is lessened, and states of starvation and intoxication are always present. Many symptoms which were seen in opium-eaters appear in more aggravated character. In the opium case dementia and melancholia are the common sequels. The opium-eater may go on for a number of years without any special suffering or

changes; while the morphinist sooner reaches the end of his career in some final break-up and death.

Dr. Tauszk calls attention to the fact that great caution is necessary in giving opiates to old people. He noticed that doses of $\frac{1}{12}$ to $\frac{1}{6}$ of a grain of morphin are frequently followed by symptoms of intoxication, such as nausea, difficult breathing, contraction of the pupils, headache, paleness of the face, and difficult micturition. According to this author, old people, especially those with arteriosclerosis, have a special intolerance toward morphin. When giving opiates to old people for the first time, the dose of morphin should be $\frac{1}{20}$ of a grain, and of opium $\frac{1}{12}$ to $\frac{1}{6}$ of a grain. Hypodermically, morphin should be given to the aged only after we are sure that they have no intolerance for the drug.

The pathologic changes observed in different forms of opiumism are limited and very indistinct. The shrunken livid appearance of the patient is a fair representation of his internal physical strength. The repeated contraction of the vessels and continuous narcotism constantly impair the nutritive processes and pervert vital functions. Anemia, both psychic and physical, is present.

Organic lesions are common. Even when premature death ends the succession of alternating hyperesthesias and anesthesias, the condition is probably that of paralysis. The nerve exhaustion,

the impairment of the circulation, the general wasting and emaciation, are all prominent links in the chain.

The physiologic action of morphin and the symptoms are practically the same as those of opium cases. The tincture of opium brings with it alcohol, which modifies in some degree many of the symptoms from it, but the narcotic effects are practically the same.

Opium-smoking seems to differ from other forms of addiction in its intoxicating qualities. In this form opium is less stimulating than morphin and has a dreamy, sedative action, followed by very peculiar symptoms. The morphinist wishes to be alone to enjoy his drug; the opium-smoker differs from him in a peculiar manner, and wants company, is talkative, his mind turns in a philosophic direction, to monosyllabic comments on men and events. He goes to a "joint," or a room which persons with similar desires frequent. Here, reclining on a bench or a table, he inhales the vapors of burning opium and is immediately at peace with every one. A dreamy satisfied mentality follows, which merges into sleep. This is short and fitful, followed by dreamy, waking periods, during which more opium is inhaled. Mentally, intense satisfaction and serenity prevail. No opposition is worthy of notice. He has no conflicts, only an intense desire

to be at peace. From this point of view he looks out upon the world, commenting on the folly of strife and agitation. With him there is no thought of to-morrow, no duty of the present. It is one serene, placid calm in which all the functions of the body are at rest. There are no standards of ethics or morality to live up to. There is no motive and purpose worth a strain or an effort to accomplish. An elysium has been reached. All sense of time and all proprieties and obligations are forgotten. He has no object except to continue this blissful state. In a low, monotonous voice the habitué dwells on great deeds, and boasts of mental strength and what he has done or can do, generally treating most themes with a lofty indifference and a far-away, dreamy interest. Thus nodding, sleeping, and waking, and alternately fixing his pipe and inhaling its fumes, he goes on, until overcome by profound sleep. When the effects of the opium wear off after sleep, a sense of misery provokes further use of the pipe. The appetite is diminished, and bread and coffee at long intervals are quite sufficient to satisfy the hunger, and these not more than once or twice a day. The excretion of the kidneys is diminished and the bowels become sluggish. All hygienic regulations as to ventilation, exercise, and cleanliness are ignored. In these secluded places he continues the smoking hour after hour until his money gives

out or acute nausea comes on. Then he emerges, and a period of suffering, cold sweats, and depression follows, from which he recovers. Other drugs will be taken. Frequently alcohol is used in the free interval. Then will come a feeling of disgust and a desire to repeat this delirious narcotism, and he will disappear in an opium resort.

Opium is rarely smoked except in special places provided for it, for several reasons: One, the peculiar odor of burned opium is very pungent, and readily betrays the victim if used in his own home. Another is that the opium-smoker dreads interruption, and seeks seclusion where there is no possibility of interference until he has become surfeited. The opium resort must be provided with experts who know how to assist the patrons in smoking with the least discomfort and trouble. The foul air of the room, its seclusion and removal from all possible detection, and the dreamy, stupid patrons make it very unattractive to any but habitués.

In fashionable circles opium-smoking is indulged in in more palatial surroundings, but the same seclusion and same desire to herd together is apparent. Here they drowse and dream and sleep and comment in a most optimistic way, and then when the paroxysm is over go home and have a period of wretchedness, ending in recovery. Most of the opium-smokers have rapidly diminishing free

intervals, and finally are obliged to smoke every day from a few moments to an hour. Such persons soon become pale, anemic, have glassy eyes, cadaverous skin, and a generally dry, wrinkled appearance.

The attempt to abandon the drug is followed by substantially the same symptoms as those noted in morphinism, only with more depression and less delirium. The opium-smoker may have during abstinence from the drug a vigorous appetite and gourmand tastes, seeking delicate foods and drinking champagne at the table, but when using opium becomes very abstemious. After abandoning the drug he has dyspepsia, is melancholic, and presents a group of psychic symptoms which are very confusing. During the period of smoking sexual irritation is an occasional symptom, and promiscuous intercourse follows. This is not prolonged, and depends largely upon impulses which come and go with great uncertainty. Not all opium-smokers experience the same pleasing effects. Many of them enjoy the stupor and actual cutting off from all thought of the present and past, and afterward experience very unpleasant sensations. While there are the same ingenious efforts at concealment, it is more difficult than with the morphin-taker. After a short time the physical effects are more pronounced and difficult to cover up. The opium-smoker dreads morphin by the needle, and will rarely take any other form of opium.

He constantly deludes himself with the idea that his addiction can be stopped at any moment. Opium-smokers of the better classes use the Turkish and other baths to counteract the effects of the drug.

In many circles there are quite a large proportion of invalids under constant medical care whose disability is due to opium-smoking, and who are treated by the physician constantly for the after-effects. These persons frequently die of acute disease, or when injured seem to have no resisting power, dying from erysipelas, tetanus, or low forms of fever.

In chronic cases an hour's smoke once or twice a day is taken to keep the brain and nerves quiescent In other and more recent habitués, one smoke a month or week or oftener is common. Many persons never smoke unless exhausted by work and care, or when they become excited and irritated or suffer from pain and some special disturbance and discomfort. Thus clerks, tradesmen, hack-drivers, excitable men and women, become prostrated and visit these opium resorts for rest and euphoria. Higher up, the business and professional man, and the idlers, the fast women, and the neurotic fashionables, together with the psychopath ambitious for money or for fame, find relief in an opium narcotism.

There is in opium-smoking a close resemblance to the drink paroxysm of inebriates: when the nar-

cotism passes a certain point, it subsides, and a free interval follows. As in inebriates, the free interval becomes shorter, and finally disappears altogether. The opium-smokers who come every day for their narcotism, either from poverty or disability after a time give up this form of drug-taking and use laudanum or spirits or both, and become invalids, going to the hospital or asylum. If alcohol-taking has preceded the opium-smoking, a return to spirits is certain when opium is withdrawn, and vice versâ.

When morphinists have been opium-smokers in the past, the degeneration is greater and the treatment is more prolonged and difficult. The narcotism from the fumes of opium falls most heavily on the higher brain-centers. The sense of duty and the relation to others, with consciousness of right and wrong, become early destroyed, and while automatically thought and conduct may seem to recognize the ethical relations of things, the recognition is superficial and unreal.

Fortunately, opium-smoking is not always pleasant, and the difficulties surrounding its use prevent its popularity. The desire for relief from pain can be gratified with less trouble and more secrecy in other ways.

A number of persons from curiosity have become opium-smokers. Finding the effects of opium in this way fascinating, smoking has been continued secretly.

An example was brought out in a disputed will of a man who had for twenty years used opium in this way. In early life he went to an opium resort from curiosity, and ever after was a victim.

In the treatment, the same seclusion, watchfulness, and medical and hygienic care are essential. There is present a marasmic condition which requires special means and measures suited to each case.

The prognosis of these cases is more grave than that of morphinism, especially among women. The higher brain-centers seem to be more thoroughly broken up, and the power of control more feeble. The motor disturbances in these cases are not so pronounced as those of morphin. There is rarely paresis, ataxia, or tremors, but there are trophic derangements, such as the hair becoming white and falling out, the teeth decaying early, and the nails of the fingers becoming brittle and cracking. Cutaneous eruptions are common. The contracted pupil frequently ends in defective sight. Congestions of the head and lungs are not uncommon. The heart's action seems to be lowered. These symptoms are seen often in morphin cases, hence they are all of the same class, and cannot always be distinguished from each other.

It is doubtful whether the opium-smoker exhibits as much cunning and mental activity as the morphin-

ist. His intellect seems to be weaker, the disposition to exert himself less. Hallucinations and delusions are not common except on certain personal subjects, particularly that of being able to conceal his condition. The opium-smoker is hardly ever an open criminal. He may steal or forge papers, but his crimes will be within narrow limits and never seen in any act that requires consecutive thinking or long retention of an idea.

In the hospital practice of large cities opium-smokers come for treatment of diseases of the stomach and liver, also profound anemia, indigestion, and general brain and nerve feebleness. In private practice these symptoms are noted in persons who are not suspected of using opium, but their persistence notwithstanding all treatment points to unknown causes, of which opium-smoking is common.

This form of using opium is increasing in large cities. It is estimated that there are over five thousand opium-smokers in New York city, and in other cities the numbers are equally large. The majority of these victims are of the lower classes, persons who are spirit-drinkers and who live irregular lives of great extremes, also persons who have used drugs for relief of pain and discomfort. In the higher classes the smokers are the neurotics and nerve-exhausted persons and idlers, votaries of fashion, drinkers, and others who are ever seeking to gratify

the senses. The first class are found in secluded, miserable resorts; the second class have palatial club-rooms fitted up for this purpose. It is asserted on good authority that opium-smoking is growing very rapidly among the better classes.

Delirium from opium-smoking is comparatively rare, and often is attributed to other than the real causes. The following example of such a case attracted much attention in a certain medical circle:

An invalid lawyer of some eminence had distinct periods of low muttering delirium, which came on suddenly, and after a few hours or a day passed away. The delirium was manifest in disconnected utterances relating to fears and losses, and broken predictions of sorrow and trouble. His voice would begin in a high key, and very shortly after would drop to a whisper, then start up again, but would always end in the same way. Everything referred to the past or future; the present was not spoken of. The diagnosis was doubtful, until finally it was found that he was an opium-smoker. These attacks of delirium always followed periods of excessive smoking, after which he would suffer greatly from nausea, and would then abstain. The delirium would follow a few hours after stopping the drug. His recovery was always attributed to the means used, the real cause being overlooked.

A patient under the author's care had an attack of

delirium of twenty-four hours' duration, apparently from a sudden stopping of the drug. The delirium was of the low muttering type, strongly resembling that of typhoid fever, but without the trembling and with much less prostration. On recovery he could not recall anything that had happened. There was no muscular agitation nor any disposition to mania; the patient simply remained passive, uttering broken sentences in whispered tones.

Several authors have referred to a new form of delirium, with these symptoms, occurring in invalids and neurasthenics, without any traceable cause, and the condition was considered due to a toxemia requiring sharp eliminative treatment. All other causes were thought insignificant, but the constant recurrence of these deliriums attracted attention, and revealed an opium origin hitherto unsuspected. Such deliriums occur in recognized neurotics and general invalids, and they were supposed to result from functional and nutrient disturbances, and to be of local origin. Undoubtedly the toxins are an exciting cause; but the changes in the neurons and nerve-centers due to the narcotism from the opium are the more prominent factors.

In one reported case delirium occurred several times during a single year, when opium-smoking was discovered, and the discontinuance of the drug was followed by recovery. In a recent example, an

invalid, after repeated attacks of delirium from which he partially recovered, finally became a muttering dement, talking incessantly and groaning as if in pain. When taken to an asylum, his opium addiction was discovered. The family physician and consultant had failed to recognize opium in the causation.

The clinical fact to be emphasized is that any strange low form of delirium, appearing and disappearing unexpectedly, should suggest opium addiction as a probable cause. While other and less obscure causes may be followed by similar forms of delirium, a careful inquiry should be made into the surroundings and history of the patient, with the purpose of excluding opium as an active or predisposing cause. When any marked type of delirium appears, and continues with but slight changes, there should be a suspicion of the concealed use of opium. Delirium of other forms, approaching imbecility, with or without exacerbations, should also call attention to opium as a possible factor in the cause.

Old men and women who have used opium for years frequently have a similar form of delirium, usually occurring some months before death. In these cases the causes are known, and the conditions which follow seem but the natural dissolution of the brain and nervous system.

A number of cases of opium-mania have, before

the drug was withdrawn or during the period of withdrawal, developed distinct symptoms of delirium tremens. Dr. Richardiere, of Paris, has mentioned many cases of this class in which alcohol was used before the opium was taken or during the time of the addiction. The delirium tremens was therefore a distinct form of both alcohol and opium disturbance. But in cases where alcohol has not been used, the development of muscular trembling and agitation, with delusions of attacks by animals and persecution, are not so common and are more difficult to explain. Undoubtedly this condition is due in some measure to autointoxications and local defects in the brain-centers. The deliriums are practically alike in having for their objects loathsome animals and terrifying figures and shapes attempting harm to the patient.

In one instance during the withdrawal period the onset of delirium was checked by the renewal and increased use of opium, but later the opium was withdrawn, delirium returned, and the patient died suddenly. Several of the cases of this class have suddenly taken on pneumonic symptoms, which were followed by death.

Delirium without muscular trembling is very often observed in the withdrawal period, but it is generally of a vague, uncertain character, and rarely is confined to any particular idea. Pneumonia is a

condition which may follow any time, and is probably due to paresis of the nerves centering in the lungs. Spasmodic coughing and nervous trembling are no doubt due to injuries of some local centers.

It must be remembered that well-marked cases of delirium tremens in opiumism are usually followed by death, and that no specific treatment or local applications can often avert the fatal results. The indications therapeutically are those for sharp eliminatives to throw off the ptomain poisoning or chemical products which are sources of poisoning.

In opium-maniacs sudden shocks are followed by delirium, and the possibility of this symptom breaking out any time is always to be considered. Many persons are taken to insane asylums in states of violent delirium resembling delirium tremens, and on its subsidence are found to be opium-maniacs. Persons arrested on the street as disturbers of the peace are often of this class; the delirium and delusions do not pass away, and they are judged insane, and often sent to asylums, where they die. It is then discovered that they were opium-takers.

A prominent man developed delirium tremens in his home. He was supposed to be temperate and was known not to use alcohol. The attending physician gave him large doses of morphin and was surprised at the toleration. Alcohol was given to prevent collapse. The result was increased delirium

and greater prostration. After several days his secret use of opium was discovered, and eliminative treatment, with reduced doses of opium, cleared up the case.

No doubt similar cases occur in which opium is not given, and the extreme prostration from the withdrawal of the drug may merge into other and often fatal diseases. In delirium tremens with extreme prostration inquiry should be made about former opium addictions. The body should be examined for marks of the needle, and when its use is discovered, the treatment will be different.

Alt has pointed out the fact that morphin remains in the stomach and large intestines, from which it is excreted and eliminated, but only after some time has passed. This was proved by experiments on dogs, who were given poisonous doses of morphin, and after a time the drug was washed out of the stomach, not having been absorbed. He believes that only when large continuous doses of opium are given can it be found in the feces or urine. In the stomach and small intestines morphin will be found in all cases of poisoning. This is confirmed by the possibility of averting poisonous symptoms by frequent washing of the stomach. In a person who has used morphin for any length of time there will undoubtedly be present a large quantity of the morphin in the stomach and intestines, and some

time will elapse before it will be all absorbed and taken up into the system. Opium in the powdered form is undoubtedly not retained in the stomach and bowels, but is absorbed, and unless used in large quantities, is not found.

It is a curious fact that but few animals are susceptible to opium. Elephants, horses, dogs, monkeys, and fishes come readily under the influence of alcohol, and many representatives of the brute creation are actually poisoned and die quickly from it. On the other hand, some birds and other animals thrive on opium. According to Guinard, morphin is always, in all doses, an excitant and convulsant to the cat. This is manifest by agitation, hyperexcitability, hallucinations, and a restless stupor.

Contrary to what is observed in many animals, to whom the drug is hypnotic, morphin will cause the pupil to dilate; the respiration and the heart are accelerated; the chilling of the peripheral parts indicates vasoconstriction, and there is abundant hypersecretion of saliva. The employment of large doses produces an exaggeration of these symptoms, with convulsive shocks. When the dose is three-fifths of a grain per two and a half pounds of the animal, it is usually fatal, death coming on from convulsions and tetanic rigidity. Young animals are less sensitive than old ones, while all animals of the feline species are excited by this drug.

CHAPTER VIII

MEDICOLEGAL RELATIONS OF CRIME AND RESPONSIBILITY

Faulty Mind and Senses. Some Examples. Loss of Consciousness. Moral Palsy. Untruthfulness. Paralysis of the Will. The Questions of Responsibility. Why Morphinists are Irresponsible. Responsibility in the Disposition of Property. Responsibility in Swindling and Fraud. Selfishness. Cannot be Trusted as a Witness. Examples. Need of Medicolegal Study. Some Strange Cases. Loss of Memory. Not Often Used for Criminal Purposes. Some Examples.

THE medicolegal relations of morphinism are practically unknown. The morphinist is unable to accurately describe occurrences, and his relation to them, because of physical disability. His conceptions of pain are very largely anticipative and imaginative, and associated with mimicry.

The mind seems unable to analyze the impressions received from the senses. Pain and suffering are so vivid to the patient's mind that the future is anticipated and brought to the present. Facts and conditions are impressed so vividly on the mind as to become exaggerated and distorted. Hence, any statements concerning both objective and subjective matters are mixtures of fiction and fact which cannot be discriminated.

It is not altogether forgetfulness or stupidity that makes the morphinist incompetent. His mind may be active and work logically from its impressions, and even his conclusions from given premises may be correct, but his conception of facts and ability to determine their accuracy is faulty, as a subjective impression may be mistaken for an objective one. This, with the egotistic confidence, makes him a dangerous witness. All impressions, even if unreal or distorted, are accepted without question, and grow in reality the more they are considered. Thus, a suspicion of infidelity, dishonesty, or intrigue is accepted as a fact, and a clear train of logical reasoning follows.

A morphinist after reading a description of a prominent man who was a defaulter saw, looking through the window, a man passing the house. He swore on the trial positively to the identity of the man with the criminal. He was convinced of the accuracy of the impression. In reality the defaulter was in a distant part of the country at the time, and the morphinist described a man the counterpart of the one of whom he had read. This was simply a projection of the mental image of his brain upon a passer-by.

A morphinist arrested in the company of disreputable characters where a murder had been committed made, at the suggestion of a detective, a confession

that he had witnessed certain acts, giving minute details which in reality were all untrue. It was found afterward that this confession corresponded in detail to the theories the detective formed before the facts were known, and that he had unconsciously suggested to the morphinist this theory, which was accepted and described as a statement of literal facts.

In the making of wills the morphinism of the testator is often very apparent in strange, unreasoning bequests. Mixed impressions, both objective and subjective, are made the basis of reasoning as to duty and responsibility.

A morphinist having a large property wrote at intervals different wills, each one logical and clear, and yet varying so widely as to suggest the mental failure of the testator. After death the will probated was contested, and it was shown that he was a secret morphin-taker, and although his general conduct appeared sane and his reasoning consistent, yet his impulses and prejudices were unreasonable, and varied widely. He was unable to consistently determine his relations and duties to others.

In another case a morphinist conceived the impression that his partner was defrauding him. He executed forged papers and came into dishonest possession of the capital involved, defending his course with great earnestness. His changed manner

and habits seemed the most prominent signs of mental failure. A careful study brought out the fact of delusional suspicion and egotism.

Criminal assaults have been committed by morphinists who in court have disputed the facts so stoutly as to create many doubts of their guilt. The impression on the mind of the morphinist that he was incapable of committing an act of so grave a character becomes a fixed conviction, with this reservation: that if he had committed the act, there were extenuating circumstances and justifiable reasons to explain it. Hence defense would be made with earnestness and fervor. Morphinists may display a consciousness of criminal acts, but think they were justifiable and could not have been otherwise. Their denials are so palpably false as to be unmistakable.

It is not clear why the morale of the morphinist and his ethical sense of right and wrong should be so feeble. It is characteristic of all such cases to be unable to be truthful; first, in regard to themselves and their addiction, and then concerning their relations to others. In some cases this moral palsy may be limited to conduct and motives, and not be seen in relation to matters outside of their own conditions.

One man will be truthful on all matters except his addiction to the drug. Here he will resort to the most senseless lying, and make cunning efforts to

conceal his conduct or explain it. In most instances this palsy extends in the later stages to all the relations of life.

It may be stated that nearly all evidence given by a morphinist in a contested case in court is unreliable. The exceptions to this prove the rule. It may also be said that the person who uses morphin by the needle is more debilitated mentally and less able to realize his exact relations to others and his duty and responsibility.

The defense of the influence of morphin in destroying responsibility has recently attracted much attention in France. A distinguished man was accused of cruelty to his young child. On judicial inquiry he was found to be a morphinist, and of defective intelligence and control. Medical examination was not able to detect insanity, but he was nevertheless sent to an insane asylum. In a second case a physician killed a relative without reason or provocation, and claimed to have no recollection of the act. He was a morphinist, and had somnolent periods resembling trance states. During this condition the crime was committed.

These cases were reviewed by Dr. Guimbail, with the following conclusions: First, morphin causes defects of attention and paralysis of the will. Second, the ethical sense to distinguish between good and evil is blurred, and the victim is unable to dis-

criminate. This sense is lost in many cases, and he cannot act from any moral basis. Third, his free will is lost and power of control over the impulses is lessened. Hence he is dominated by morbid impulses, both physical and mental. Fourth, the morphinist is a genuine lunatic; as much so as the dipsomaniac, only more subtle and concealed. Fifth, responsibility is always impaired because of the intellectual enfeeblement and diminution of the moral sense. This is more apparent when associated with delusions and mental disturbance. The border-line between responsibility and irresponsibility can never be found. Each case must furnish the facts from which it is to be judged.

In a recent discussion by the French Society of Psychology the question of responsibility in morphinomania brought out the following statements: To establish the capacity of a morphinomaniac all phases of the disease must be examined. Each case presents phases and variable degrees of resistance to the dose employed; hence there must be different degrees of mental condition. There must be periods of absolute irresponsibility and other periods of apparent soundness of mind.

One author was convinced that morphinic mania can occur in a case only where there is an established predisposition to become irresponsible, and that this could not be created in a healthy brain and nervous

system. Exception was taken to this, and cases were mentioned of an acquired disposition which destroyed the capacity of the victim to judge of the conditions present and of his relations to them. It was asserted that morphinomaniacs should all be considered as mad in varying degrees according to the case and the conditions present.

All statements by the morphin-taker about matters regarding his daily life are sure to be full of errors, not only from faulty memory, but from incapacity to discriminate between the truth and fiction of any subject. While he may be very clear in some directions, his power of judging the meaning of facts is disturbed, and while his mind may be logical, the sense impressions are faulty, and the conclusions which he draws will have a large personal bias which is continually shifting. The sense impressions are accepted without question or study. As, for instance, a woman ironing a shirt at an open window seemed to a morphin-taker to be beating another person. A man with a stick in his hand, smoking freely, was supposed to be firing a gun, the stick being considered the gun and the tobacco smoke the result of the explosion.

For a short time the users of morphin may appear very clear and positive in their convictions, but when pressed to explain them show signs of confusion. The breaking-up of the sense impressions, with the feeble-

ness and diminished power of the higher brain to recognize the ethical relations of life, make it evident that the statements of morphin-takers cannot be relied upon, and should never be accepted unless confirmed.

Recently the question of legal responsibility in persons who use opium or morphin has come into prominence. Several very important cases call for a medical decision of the degree of responsibility or irresponsibility of this class of persons.

Questions like the following call for an answer: How far is a morphinist or an opium habitué responsible for and conscious of his acts? Will the use of opium or any of its alkaloids destroy the sense of right and wrong or of duty and obligation? Will the continued use of opium so disturb the reason and higher moral centers as to encourage crime?

One of the common clinical facts which seems to bear on these questions is the uniform untruthfulness of persons using these drugs, particularly in regard to matters concerning themselves. Like the alcoholic, the intrigue and deception is often coarse and unskilful in its plan and execution. Obligations of honor and duty to society are overcome by morbid impulses for narcotism. In many instances changes in the higher ethical brain are apparent only in the later stages or when subjected to some special strain or pressure.

A general answer must be made to this question from a clinical standpoint: Is there any special class of crimes that are commonly committed by morphinists? and, if so, what are they?

The action of opium and morphin on the brain and nervous system is that of a narcotic and depressant, hence crimes of violence are rarely committed, but crimes against property and character, and crimes associated with selfishness, skepticism, and credulity, are common. The following are illustrations: A morphinist disinherited his son because of the latter's skepticism in religious matters. Another man left his home, believing his family was plotting to place him in an asylum. Another forges a note to procure money which he does not need. Another engages in swindling operations in which he consents to defraud his father. Another becomes a kleptomaniac, stealing everything that his fancy demands.

These are crimes of selfishness and impulse, and while sometimes associated with cunning and design, always lack the motives of the calculating criminal.

WHY MORPHINISTS ARE IRRESPONSIBLE

There are various physiologic reasons for the assertion of irresponsibility in morphinism. Con-

tinuous narcotism and blunting of the sensory centers impairs the power of reasoning by obscuring and narrowing the impression of the senses. The morphinist, as well as the opium-taker, always has diminished and disturbed powers of seeing, hearing, taste, and smell. The objective world is not correctly seen. The functions and organic activities of the brain are impeded and their vigor and acuteness lessened. The waste products of the system are increased, and the power of elimination is retarded. Favorable soils are formed for the growth of toxins and poisons which in themselves are sources of depression. Disturbed nutrition, anemia, and exhaustion are common symptoms of this condition.

Persons suffering in this way cannot have a clear recognition of the nature and consequences of acts and conduct. Such persons act automatically, repeating what has been done before, but when confronted with new sets of facts and conditions, are not quite able to realize the relations of right and wrong. All opium inebriates are controlled by an impulse to procure the drug at such times as will best serve for their comfort. Every other consideration is subservient to this impulse. The comfort or discomfort which comes from the use or absence of the drug is always attributed to other conditions, hence the reason is perverted and sense activities are deranged.

These degenerations of both brain and sense are attributed to outside causes and surroundings. Egotism and pessimism are so frequently associated that the relation of both subjective and objective conditions and events is confused and misunderstood. Where the quality and nature of conduct and acts come into question, this defect is very apparent, and will often vary widely with the psychologic conditions of the person and his surroundings.

Recently one of the questions of responsibility which came into prominence was the disposition of a large property by a person who used opium. He was a merchant and had used morphin for five years, and was induced by persuasion of his sons to undergo treatment in an asylum. This action seemed to be his motive for disinheriting them. He urged that he could recover at home, and that it was a hardship to go away. The morphin was withdrawn, and he continued cheerful, maintaining the former pleasant relations with his sons. A year later he died from an accident, and a will was found giving his property to his daughters. This will was drawn up after the return from the sanatorium, when he was not openly using morphin, and was apparently in full possession of his senses. He explained to the lawyer who drew the will that this disposition had been determined a long time before, and grew out of want of confidence in his sons. In a careful study it was found

that morphin had been given for neurasthenic states some years before, and had been continued in increasing doses up to the time of entrance into the asylum. Soon after he began to use morphin, delusions of losing his property and fears of loss by fire or burglars grew constantly. At times he was excited because unusual efforts were not made to avoid these dangers. After returning from the asylum he was more irritable and depressed than ever. The strong probability was that he began to use morphin, although this was concealed. His intense egotism and continued denial of using the drug, even when it was in his possession, were prominent symptoms. From this and other facts I was convinced of his irresponsibility and mental perversion at the time of writing the will.

A morphinomaniac began the use of morphin eight years before, for relief from neuralgia following an attack of malaria. He continued its use until he was taking twenty grains a day. Except occasional somnolence and short periods of excitement, he seemed in no way changed. Suddenly, without cause, he sold out his business and property to a clerk for a very low price. His family applied for a guardian, and a commission was appointed to examine him. His changed mentality and extraordinary care of his business at times, followed by indifference and disregard of any business considera-

tions at others, were the most prominent symptoms. He also had delusions and fear of violent death, and would not ride in a public conveyance. He thought his family was opposed to him, and wished to have him die. At times he was very credulous and emotionally religious. Then he would be skeptical of everything and doubt all statements made. The commission decided his mind was impaired to the extent of being unable to manage his property, and judge of the right relations to his family.

These examples are given to show that in the care and disposition of property a morphin-taker is most likely to have impaired mentality and be unable to reason sanely, and to understand his relations and duties to others. His impressions are unstable and his reason changeable. Hence he is not likely to act consistently or rationally.

In criminal acts the morphinist and opium-taker not infrequently engages in swindling operations, deceptions, and frauds. Only a few cases have been contested on the ground of irresponsibility. In most of them the facts were not studied with sufficient minuteness, and the courts declined to recognize fine distinctions of mental health or to permit innovations in the ordinary ruling. In one instance a morphin-taker preferred to go to prison rather than have a defense made on the ground of his

addiction. The circumstances were these: A manufacturer, fifty-four years old, of excellent character, was given morphin for some digestive trouble. The effect was so pleasing that its withdrawal was followed by insomnia. Hence its use was continued. A needle was secured, and was used secretly. Six years afterward he was tried and sentenced to prison for forgery. He used the names of his friends on bank-notes and became involved, although himself not a bankrupt. The forgery was unreasonable, and without special motive or purpose, and wanting in the usual cunning of that class of criminals. His embarrassment could have been relieved without resorting to forgery. For two years he had been forging papers and notes and taking them up before the crime was discovered. He was not a poor man, and did not seem to make anything by these efforts. He did not try to explain why he had done this, or seem to realize the nature of the act, but excused it in a childish way as a customary business method. His mind was feeble, and he displayed religious delusions, writing frequent letters to relatives who were dead. To his family he was reticent and suspicious, rather irritable, but always reserved and quiet. There was undoubtedly mental impairment, and a degree of insanity which was not recognized. He is now serving out a sentence. Had he been placed in an asylum and properly treated, recovery might have followed.

Other cases of opium and morphin addictions exhibit symptoms of intense selfishness which rapidly merge into dishonesty and crime. Often such persons show veritable deliriums of acquisitiveness. Their relations to others are those of intense selfishness with constant efforts to beg and borrow or appropriate everything which may or may not be of use.

Recently such a person died, and the inventory of his property showed a large collection of miscellaneous articles which had been borrowed and stolen. It was found that for years he had constantly begged or borrowed, and finally stole everything he fancied. The foremost thought of his mind was to procure something for nothing. He was shunned by his neighbors and friends, and on several occasions arrested, but was always able to prove an alibi. There seemed to be no object in his life except to procure morphin and go about appropriating everything that he wished. He possessed cunning enough not to steal openly or go out at night, and when confronted with his theft, always explained that the articles were borrowed, to be returned at a certain time. He possessed a certain amount of intellectual capacity, talking about events outside of his own interests, and showing a perception of the relation of surroundings and conditions due to ordinary sanity.

Many of these cases pursue a line of conduct that by itself is thoroughly criminal; the evil in it may be skilfully concealed, but it always approaches the verge of criminality. Their relation to others is that of intense acquisitiveness and desire to make use of or to possess everything that comes their way. The possible motive behind this is sometimes doubtful, often very apparent. In one case it is the fear of poverty and distress in old age. In another it is materialization of the impression that the hidden motive of all persons is to get from each other all they possibly can, and that all the relations of society and business turn on grasping selfishness. Such persons are always slanderous, untruthful, and deceive with every opportunity. Crimes of minor character are committed constantly. The only feature about it showing intelligence is the boldness of denial or the offered explanations of the act.

An example of such a case was that of a morphinist who had originally been a clergyman. From ill health he became a farmer, and had used morphin for a great many years. At his death an inventory of his property showed a large collection of unusual articles which he had procured in some unknown way. An effort was made in the courts to identify these goods and to distribute them to the rightful owners. He was frequently seen at stores and auction sales, and while apparently examining goods

with great care, he seldom purchased any. Persons with whom he was associated not infrequently lost knives, handkerchiefs, and other small articles; and when they were found in his possession, he seemed pleased, and restored them as a mere incident not worth an explanation. When the losses were larger and created distress among his friends, he manifested great interest, and generally succeeded in finding them in some unusual place. In manner he was reserved, and in business matters very exact and honest, and yet he stole and concealed everything which could be easily secreted. To his intimate friends he was known to be using morphin, and although at times peculiar, he preached excellent sermons occasionally, and was in every other way a reputable man. There seemed to be no consciousness of the nature of his acts in appropriating and concealing things, but, on the contrary, he seemed to have a conviction that these things came through a legitimate source.

Another example is that of a tramp printer who had a mania for marrying in every town he visited. He used morphin constantly, traveling from place to place, always disguising himself and changing his name. He appeared to be well, although very reticent and secretive in his habits. He claimed to be very religious and a literary man, and read a great deal. After marrying he would dis-

appear and repeat the same thing in a distant State. The quantity used finally increased to such an extent that he lost all caution, and was detected and sent to State's prison.

Examples of this class have many surface indications of sanity which are largely automatic, yet associated with defects of reasoning only apparent from critical study. The shoplifters and sneak-thieves belong to this class. They seem to study the appearance of honesty, though their criminal acts lack cunning and exhibit foolishness in an unmistakable degree. A certain number of these persons, where they belong to the families of the wealthy, are watched and guarded by their friends; others go to jail and become criminal rounders. The withdrawal of morphin reveals their real condition and indicates a degree of insanity that is beyond question.

CAN MORPHIN INEBRIATES BE TRUSTED AS WITNESSES?

This question has been asked and answered differently in several important cases. A special form of the question has come into prominence with a very uncertain answer—namely, How far can a morphinist or opium-taker be trusted as a witness in matters in which he has no personal interest? The best judgment of experts familiar with these

cases seems to be that the statements of such persons on the stand should be considered doubtful, irrespective of all personal interest or absence of interest, unless confirmed by other facts and strong circumstantial evidence. In a case of this class a morphin-taking woman swore positively that she had witnessed an assault. In reality no such attempt occurred. Her statement was a delusion and misconception. In another case a morphinist lawyer swore that he had witnessed a certain will at a certain time. It subsequently appeared that the will was written years before, and he had not seen it.

In criminal cases the reliability of the witness is the turning-point of the case. If the witness should be a morphin-taker, the possibility of error would make his statements very doubtful. The opinion expressed in the courts recently is that the use of morphin does not impair the responsibility unless the drug has been used a long time and stages of chronicity have been reached. Here irresponsibility must be assumed unless the general conduct and thought indicate sanity.

It is also claimed that in periods of intense irritation and delirium following the removal of the morphin where the mind is evidently unbalanced, degrees of irresponsibility may be inferred. It has been asserted that during this stage crime may be com-

mitted of violent character and irresponsibility can be established by prominent symptoms. The courts so far have not recognized this, and no cases have been defended along these lines. Cases have occurred in which crime was committed during the removal period, but no attempt has been made to show the delusive and delirious activity of the brain.

It may be stated as a fact which clinical experience will amply sustain, that morphin used either in large or small doses, depending on the case and the conditions, always alters the reasoning powers and changes the sensory activities, and is always followed by intellectual weakness, with diminished moral sense and consciousness of right and wrong.

In disputed cases it is a reasonable procedure to show that the criminal was not using morphin at the time the crime was committed or was not in a condition of morphin delirium due to its withdrawal. In these instances the principal fact that opium or its alkaloids had been used a long time previous should be a good reason for inferring mental change and unconsciousness of the nature and quality of the act.

The disability which appears in these cases may be concealed, and only appear under the strain of peculiarly exciting circumstances, or it may appear prominently at the beginning of a case. In some instances it is progressive and regular; in others it is

irregular, impulsive, and marked by long halts and changes.

As an example, a man of previously good character suddenly descended to very low levels of intrigue and moral palsy. Both his conduct and thought were markedly changed. This change followed the use of morphin within a year or two from the time of its first use, and clearly indicated a cumulative and concentrative action on the higher brain-centers. He was able to conduct business and in some respects seemed not much changed.

In the case of the printer mentioned, who married with every opportunity, the injury from morphin seemed to be concentrated in one direction. His body and mind seemed not to suffer, and his ability to work remained the same. In a noted case of the abduction of a child, the criminal was a morphinist of long standing, and the crime was a sudden impulse, without purpose or motive. His real condition of insanity was apparent after the first few days in prison. Often the real defects of both reasoning and consciousness are concealed by delusions of free-will and ability to act differently.

CHAPTER IX

MEDICOLEGAL RELATIONS OF CRIME AND RESPONSIBILITY—(Continued)

Clinical Histories. Failure to Understand the Degree of Responsibility. History of Inherited and Acquired Defects. Psychic Palsies. Crime Instincts Prominent. Double Personality. Strange Delusions. Hallucinations and Morbid Impulses. Opium Not Often Used for Criminal Purposes.

CLINICAL HISTORIES

WHENEVER the fact of an addiction to morphin appears in a disputed case, the clinical history should receive very careful study. The first condition and circumstance in which the drug was used will often throw a great deal of light on the direction of the degeneration and pathologic changes which follow.

After the drug has been used a long time, certain local injuries and impairments of function will appear. From this point the progress can be traced down through successive stages made prominent by certain disabilities and dissolutions; also in organic and functional changes. From this study the injuries and irresponsibilities will appear and the impression of sanity will be dispelled. The frequent statement that morphin narcosis can be repeated

continuously without injury because a casual observation does not reveal it will be found to be an error. Crimes and questionable acts committed by morphin habitués are always the result of a defective and disordered brain. The organic basis for these acts may be traced in many cases. The question whether these changes are permanent or transient can likewise be settled by a study of accurate clinical facts.

Up to this time the clinical facts and studies of cases sustain the assertion that morphinists and opium-takers should be classed among the insane, and be studied as members of the neurotic family. It is also clear that in all such cases there is impaired mental and physical health, organic change, and limited responsibility.

NEED OF MEDICOLEGAL STUDY OF MORPHINOMANIA

Every year it is becoming more and more apparent that some authoritative studies should be made along the medicolegal lines of this subject. When alcohol is used alternately with morphin, and crime follows, the question of insanity will turn largely on the effect of alcohol. Morphin will not be considered. It is doubtful if any one can use either of these drugs long and retain his reasoning powers and normal sense perception. The use of morphin

alone may be continued secretly without attracting much attention or suspicion of mental change. The following are examples of this class:

A woman killed her infant child and was unable to recall the act or explain her motive. She became a maniac shortly after being confined in prison. It was found that she was a secret morphin-taker and had committed the crime in some delusional stage after a larger dose than usual.

In another case a man convicted of incendiarism proved to be a morphinist. After the use of the needle he had a mania to set fire to property and to make a great effort to extinguish it, concealing his crime with great cunning. When fully under the influence of morphin, he would with great secrecy start a fire at some point where there would be difficulty in extinguishing it, then give the alarm and show excitement and energy in the endeavor to put it out.

In another case a secret morphinist traded his property for mining stock which was worthless. Another man of this class drew out a large bank account to buy a machine for perpetual motion.

In these cases the legal question of responsibility caused a great deal of trouble, and was unsettled. Fortunately, the removal of morphin revealed the suspected insanity in some of them.

In another case a man whose strange and eccentric

conduct indicated his use of morphin became an accessory to a murder. In the defense which followed it was proved that his conduct and manner were peculiar before the act, and yet a leading specialist swore that he was sane and understood the nature and character of his deeds.

Persons of this class belong to the neurotics and psychopaths, many of which have inherited states of nerve and brain exhaustion. Others have acquired feeble and unstable brain-centers. Opium or morphin not only covers up these conditions, but intensifies them, making them pronounced paranoiacs and defectives. These cases always exhibit morbid impulses and failure to recognize duty and responsibility in the ordinary matters of right and wrong. Crime is very natural from this condition, and only requires special, exciting causes to produce it.

Such cases, if studied with the same critical accuracy as other diseases, will have no mystery, and the real conditions will appear beyond all question. The rule should be to examine the crime, its nature and circumstances, from these going back and tracing the conditions and causes which apparently favored and led up to it. Where morphin addiction is found, the physiologic action on the mind and body should be considered. The first use of the drug, and all the causes and circum-

stances associated, together with the heredity and states of disease or injuries and physiologic changes which have affected the vigor and growth of the body, these will indicate the origin and progress of the degeneration.

From such facts clear indications will appear of capacity or incapacity to realize the ethical relations of life. Beyond this the physiologic question of the exact injury and the psychologic indications of how far the ethical sense has been disturbed will help to explain the physical character of the act committed.

In deductions from these facts authorities will necessarily differ; courts will also differ, depending on the theories they hold of the relation of mind and body, and of the cause and meaning of the facts. The physician can never be mistaken in claiming irresponsibility if the history and facts of a case show a long addiction to the drug. While the conditions and circumstances and symptoms will vary widely, the general principles remain true that the use of morphin always impairs the consciousness of right and wrong, and therefore lessens or destroys responsibility.

In crime following morphinism cases of double personality have been noted. Delusional states were present in which the person acted two different characters, that of an honest, innocent man,

and that of an adroit, bold, and unscrupulous swindler. While the term "double personality" describes in a general way these two states, it is misleading as compared with other conditions called by this name. The morphinist enters upon a course of adroit deception. Externally, in conduct and appearance he is a thoroughly honest, open, frank person; secretly, he will commit acts of meanness or crime. When the morphin is withdrawn, the concealed motive is apparent and the childishness and confusion which follow indicate the instability of the brain. Such persons are recognized in criminal courts as a most dangerous class by their audacity, cunning, and utter absence of conscientiousness.

In these cases morphinism seems to stimulate a peculiar crime instinct, probably based upon some predisposition, along with an extraordinary power of concealment and capacity for deception. The double personality appears in the apparent truthfulness of the person, who defends his criminal act without the slightest consciousness of its nature, apparently believing in its morality. There are evidently present states of poisoning in which the psychic functions are deranged through the system being saturated with morphin.

The term psychic palsy seems to describe this condition in a measure. The former personality of the person is lost. Conduct and thoughts appear

from a different point of view, and vary widely from former conditions. New purposes and new motives foreign to any previous ones appear. The strange mixture of cunning, honesty, and reasonableness is so unusual as to be outside all known theories of the condition of the brain. Some examples of these cases will be given:

One instance was that of a woman who, after using morphin up to a certain point, went about the house secreting things of value, locking doors and windows, putting away matches, through the fear of robbers or fire. During this period she appeared rational, talked clearly of other matters, then would relapse into her former indifference and be unconscious that she had exercised any unusual caution.

A case of much prominence was that of a noted politician and banker, who, after retiring from business, began to use morphin, following the constant use of spirits. He never appeared unusual or mentally disturbed in any way. In his family he was reticent, and slept a great deal at night. Finally he was detected setting fire to a building. He was found to be the author of numerous incendiary fires in the villages about. He would go to a distant town and rise in the middle of the night, start a fire in some old building, and return to his bed so secretly as to prevent all suspicion. He was finally caught in the act, and although stoutly denying it and ex-

plaining his presence in other ways, yet was unable to establish his innocence. An examination showed that after using a larger dose than usual at night he would become very secretive and go about stealthily, walking along back streets and avoiding all publicity, returning in an hour or so to his room with the greatest caution and cunning. When found in some suspicious place, he would explain his conduct with frankness and honesty. For a long time many barns and outhouses and old, worthless buildings in the neighborhood were burned up by incendiaries. He was suspected, placed on trial, and the defense of insanity failed. The experts were confused as to his mental condition, most of them considering him responsible. He was sent to prison and the morphin withdrawn, when his real condition was apparent. In this case morphin seemed to stimulate his brain, rousing up pyromaniacal impulses associated with unusual cunning in concealing his conduct, which was probably based on some idea of advantage to the community in having these unsightly structures burned. When the morphin was removed, he had a very confused recollection of his conduct, and no clear conception of what he had done. There was no malice, he having set fire to a building of his own, and the next day offered a large reward for the person who had committed the act.

A patient under the author's care for excesses in spirits suddenly became a speculator, buying stocks on a margin. Fortunately, his resources were limited, but the mania continued in lottery tickets and bucket-shop ventures. This practice was foreign to his past conduct and character, and was unexplainable until his secret morphin addiction was discovered. He was treated for this, and two years afterward began a career of cunning, sharp, dishonest speculations, and was arrested. On trial the resumption of the morphin addiction was shown, but the mental power and skill displayed indicated unusual ability; he was finally convicted and sent to prison. I saw him later, when the morphin was taken away, and the evident unsoundness of his mind could not be mistaken.

Another case which came under notice was that of a prize-man and graduate of a college, who married wealth and spent two years traveling, then suddenly began a career as a confidence-man and forger. He traveled around under assumed names, passed bogus notes, raised checks, and when caught gave such clear explanations as for a time to disarm all suspicion. Finally he was arrested and held for trial. As long as he could procure morphin he was calm, clear, adroit, and possessed of unusual brain power, but after his sentence and removal to prison he became childish and feeble mentally. In this

case the morphin developed a new personality. He talked as if he believed most firmly in the honesty of his career, and never doubted his disability to do anything dishonest. When confronted with his deceptions, he did not recognize the nature of his conduct, but showed the greatest skill in justifying and explaining it, never displaying any visible consciousness of the dual life, but always appearing honest and frank to an extreme degree. He passed a forged note, then went out on a back street, changed his attire, put on false whiskers, and came back on the street, walking with great coolness. He went into a store, bought some morphin, and then purchased a pair of shoes, giving a forged note, as before. A detective who had followed him closely, arrested him, and after a short examination before the chief of police he was discharged. His earnest, frank manner convinced the chief that he was not guilty. The next week in a neighboring city he did the same thing, was arrested, and discharged as innocent. Finally, a detective followed him, and found that he was constantly changing his attire and assuming different disguises; buying cloths and other things which were finally pawned; giving checks, some good, others bad; making deposits at banks and drawing them out. During this time he bought morphin freely, but never seemed other than calm. He was finally arrested, and after serving a short sentence, dis-

appeared. While using morphin he appeared very frank and open in his manner and conduct, especially in public and in conversation with others. He carried cards and billheads of well-known firms far away, and represented himself as a member of the different firms or as a traveling man connected with them. He always carried an overcoat and had facilities for suddenly changing his attire and appearance. There seemed to be no consciousness of duplicity in his talk or conduct. When the morphin was taken away, the very opposite appeared. He was remorseful and depressed, timid and shrinking, displaying his motives and thoughts in a most marked way.

Another case reported was of equal interest. A series of very remarkable swindling operations was noted on the Hudson River night-boats and Boston Sound steamers. The detectives were unable to fasten the crime on any one until finally a young man of refined, delicate appearance was arrested for passing a forged check. It was ascertained that he was the probable author of all the swindling for the past two years. He was a morphinist, and had an income from an annuity. He spent his time traveling around, appearing to be a clergyman, actor, or business man, and talked freely with every one, inquiring very minutely into the personal history of prominent persons and officers. He would secure ad-

vances on brass watches and bogus diamonds, pass worthless checks and railroad tickets, solicit loans and give as security worthless bonds and stocks. He would buy goods, giving bogus checks, and receive money in return; show bank-deposit books of large sums and leave them as security; make the acquaintance of some rich man, and, after swindling him, disappear. He changed his costume frequently, wearing spectacles and false whiskers and wigs, appearing as a large, fleshy man; then wearing half military suits. His wardrobe was composed of a great variety of theatrical suits, and he frequently claimed to be an actor. In jail he was identified by many persons as having assumed different disguises and defrauded them in various ways. As long as he could procure morphin he was genial, self-reliant, and very sincere. He never seemed to be deceitful, and always acted and talked as if he firmly believed in everything he said and did. The most careful questioning and effort to induce him to explain his conduct left a strong impression of his honesty, although it did not explain his life and conduct. The detectives called him an honest rogue while using morphin. His manner on the witness-stand was so frank and candid that the mystery of his conduct deepened, and the jury was half inclined to think that some mistake had been made. He was sent to prison and the morphin removed, and

all his manner changed. His artlessness, clear thought, and talk disappeared, and the fawning, lying hypocrite appeared, with all the criminal instincts. He is still in prison, and is regarded with much suspicion by his keepers.

While these may be considered extreme cases, they are types of an unknown state following the use of morphin. From inquiry it appears that morphin criminals are regarded as the most dangerous by police authorities. They often have full control of their nerves and can act a double part so cleverly as to disarm suspicion. Such cases are bold, defiant, and adroit, and possess a rare power of deception entirely foreign to other criminals. This is sustained in the ordinary medical treatment of such cases. The cunning deception and the unconscious reasoning and concealment of their plans and motives seem to point to some psychic palsies of certain brain functions. Where a patient is apparently suffering, and then suddenly becomes cheerful and quiet, and is loud in his protests against the suspicion of having used any morphin, some condition of psychic palsy is likely to exist dating from the first secret use of the drug.

Innumerable instances of the most cunning intrigue and seductive falsehoods are common in such cases. They act and talk with the certainty of truthfulness, and seem unconscious of the deceptions they

practise in their efforts to procure and conceal the use of the drug. One such case was detected by examination of the urine, in which the morphin reaction was found. It was that of a woman of great respectability and prominence in the church and society. She was suspected of using morphin, and yet it was impossible to discover the way she secured the drug. Her earnest, emphatic denials were clearly the result of abnormal mental activity, and showed some obscure palsy of the higher centers. Yet during this period she went about in her usual way. She was regarded as an earnest, praying Christian, whose high ideals of truth and honesty were beyond question or suspicion. This case roused some bitterness among her friends. Her husband and family could not believe that she was guilty of deception, and when the morphin in the urine was detected, thought it a mistake. She finally went to a secluded place in the country, and after a time the morphin reaction symptoms appeared. Then all her former self-possession and boldness left her. She became very penitent, and was a different person in every way. The mystery of this deception was called by the clergyman "a possession of the Devil." It was a state in which reasoning and consciousness of the relation to others were suspended. Her mind was concentrated on procuring morphin and concealing its use from others. This dominated every other consideration, and was prob-

ably considered a sacred duty, to be carried out above every other thing.

In the examples of the two swindlers the morphin seemed to rouse a mania for deception and a double life. The gains procured were of minor consideration and the greatest pleasure came from taking advantage of the credulity of others. In another case the confusion and mystery which followed the deception seemed to be the most enjoyable part. This person would stand around and talk about the act, and show sympathy with the sufferers from the act he had committed.

Very few cases are noted where capital crime was committed in these morphin states. Thefts, swindling, and general deception, with concealment of motives and conduct, are the most frequent.

The author has met with two cases where a mania for writing a will occurred. Both men of some property made from seven to eight wills a year for several years. These were concealed. At the death of one, the wills were brought to light. The other recovered from morphinism and destroyed those he had made.

The cunning, skill, and ability displayed in the deceptions of morphinists are frequently based on delusions that are so dominant as to seem real and true. No idea of the real condition or the danger of exposure is apparent to them. They will act

only as persons do who are fully convinced of the honesty and reality of their intentions.

A noted physician under the author's care displayed extraordinary skill in concealing his real condition and was not fully conscious of his acts or the consequences. Even when he was convicted of his deception he only seemed roused to greater efforts for concealment. No reasoning or counsel could displace the mania for deception. On other matters he was in nowise disturbed mentally, reasoning and acting with excellent sense and judgment. He could discern motives and deceptions in others, but was unable to realize his own condition. When the morphin was removed, this changed, and he realized his actual state and acted differently.

In another case a man of noted honesty and strong character denied all use of morphin, and when a quantity was found on him, persisted in explaining it in the most adroit way. He seemed actually to believe his own statements, and could not be convinced they were not true.

The foolish deceptions of alcoholists are quite different. They often display a consciousness of their real condition and the concealment they are practising. The alcoholists are frequently weak and childish in deception, and show by their conduct a certain consciousness of their danger in the efforts they make to cover it up.

Certain persons who use both morphin and spirits often appear to be thoroughly impressed with the idea of the correctness of their acts and have no sense of the deception and danger of exposure. It would appear in some instances that the unusual precaution and effort at concealment showed consciousness of their nature, but later conduct failed to confirm this.

In some instances strong delusions are noted to follow large doses of morphin. In some cases they disappear, and are not manifest until the narcotism wears away. In others they become bold and show maniacal impulses.

A physician addicted to morphin displayed great harshness to his patients and family at times; then he would recognize this condition and be very penitent for his conduct. On one occasion he drove his wife away from the house, and two hours later went after her, showing great tenderness. This was not the mania seen in alcoholics, but a calm, reasoning morbid impulse carried out deliberately and with every appearance of sanity.

In a case to which the author was called in consultation a delusion of sudden death occurred at stated intervals. The patient demanded most unusual preparations for a death-bed scene. Clergymen were called and a large family gathered to witness his exit. Finally, a slight interval of sleep

would bring a change and the desire to live again returned. This was not hysteric, but a calm, reasoning, hopeful period that lasted several hours. He gave no signs of mental disturbance nor seemed unreasonable in his thoughts or conduct. He was known as a user of morphin, and was never seen stupefied by its results. He was under treatment for its removal by the family physician, and was secretly using it when these trance periods arrived. He had only a faint recollection of these events afterward, and offered foolish explanations that showed that he did not realize his condition.

In another case, after using a certain amount of morphin, a quiet, unassuming dentist became a strong religionist. He would march with the Salvation Army, and make eloquent prayers and exhortations. This period of excitement would last several days; then he would resume his former quiet life again. In the religious period no signs of mental failure or weakness appeared. He seemed in every way clear, sensible, and earnest, and explained his change of conduct in the most plausible way.

These cases illustrate a mental state which occurs not infrequently among morphinists of all classes, and particularly in persons of culture and more than usual mental power. The confinement of such persons for a few weeks and the removal of all opportunities for procuring morphin bring out the real condition.

This closely resembles reasoning mania, except in the calmness and self-possession manifested. It would seem that a new personality is involved, and that some new ideas or motives take full possession of the mind, and all other conditions and surroundings are ignored.

In a recent murder trial a morphinist who had evidently been associated with the crime in some indirect way displayed masterly ability in the explanation of his conduct. He shed tears, and created a strong feeling that he was the victim of deception by others. After the trial the facts of his complicity came out, but he continued indifferent and utterly ignored them. He, no doubt, actually believed his own statements, and unconsciously used cunning measures to make them appear true.

A man under observation, an editor of ability, has on several occasions sent out startling telephone messages which were false. Later he defended his acts with unusual plausibility, and it was ascertained that he was a secret morphinist. His enjoyment was probably in the emotion produced by the effects of such news on others. He talked freely of these false statements and seemed as startled as others at the time. He is now under medical care, working daily at home.

There are no theories to explain this condition other than some obscure palsy of certain brain-

centers which breaks up consciousness of right and wrong, or suspends reasoning on the nature and consequences of acts. It may be a state of local poisoning which centers in some psychic function, giving prominence to some idea, which is defended and explained with all the force of a normal brain. The usual efforts to explain and defend acts committed under the influence of alcohol are often so crude as to carry their own refutation. The morphinist in this state, as long as he can secure a sufficient amount of the drug, makes fewer mistakes and shows less weakness in making his position and conduct appear clear and sensible, and has no difficulty in explaining them to his own satisfaction. It is clear from this that in certain conditions of morphin addiction a new personality appears whose acts are diametrically opposed to those of the person in health and normal condition.

Hallucinations and delusions accompanying morphinism are not often prominent, and mostly concern trivial matters; hence are seldom investigated. Occasionally they come into legal notice, and such persons are regarded with suspicion as being guilty of malingering by those unacquainted with them. Cases like the following have been reported:

A prominent woman telephoned the police station that a murder had been committed in an adjoining house. The officers called to investigate a short

time after and found no one moving. Two servants were working before an open window, and the lady of the house was asleep. The accuser described with minuteness of detail two women fighting and a man rushing in and stabbing one, then disappearing. This she asserted that she had seen from her window. The basis for this delusion was two servants working before the open window and holding up the garments they were using. She was told that it was untrue, and became very angry at the doubt. Later she was found to be a morphin-taker, suffering from hallucinations and delusions.

A well-dressed man, with a bruised face and some head wounds, appeared at the police station and gave minute detail of an assault by a leading merchant, who, he said, had attempted to kill him. The motive was supposed to be political and to prevent him from securing a nomination which another sought. All the circumstances of the assault, with exchange of blows, violent language, and escape by jumping over some rocks near the roadside, were given with graphic exactness. In reality the supposed assailant proved to be in a distant city at the time, and could not possibly have been the person accused. Other circumstances showed that no assault had taken place, and that the accuser was a morphinist, and had in a delusional state jumped over a rocky ledge, injuring himself.

An example showing the magnitude of delusions following the use of morphin was a subject of unusual interest and inquiry. A widow of wealth and culture and the highest respectability charged her physician, a man of high character, with committing a criminal assault. The woman was supposed to be in good health and had not called upon her physician professionally for years. He rarely called at her house except on some mission of charity. The offense was affirmed to have been committed in the early part of the evening, and the woman was so shocked that she remained in bed for two days. A week later she confided the statement to her clergyman, and a lawyer was sent for and a meeting held. The woman was very positive in her statement, and the doctor as emphatic in his denial. It appeared that he had called that evening about seven o'clock, remaining only a short time. He came to inform the lady of the death of a relative, who, with his son, was traveling in a foreign country. After leaving, the doctor accompanied his wife to the theater, and remained home during that night. The lady's statement that the assault was committed late at night was changed, and it was asserted to have occurred early in the evening; and when pressed for an explanation of this, she seemed confused concerning the exact time. The very unusual feature was the apparent unimpeachable integrity of both

parties. There had been only a feeling of respect between them, no intimacy nor familiarity, and the physician seldom called except on some errand of charity, she being actively engaged in the management and disposition of her property. The matter was referred to the author. The only suspicious circumstance was an unusual contraction of the pupils and excessive paleness and nervous uneasiness of the lady who made the accusation. During a careful inquiry, she acknowledged that she had used opium in the form of McMunn's Elixir at different times, but was confident that it was only for its medicinal effect, and that it had no influence other than to produce sleep. An inquiry at a neighboring druggist's brought out the fact that she bought large quantities of morphin continuously. The matter was laid aside, awaiting developments. Three months later she asserted that the same physician had visited her room at midnight and assaulted her as before. In reality the physician was on the ocean, having sailed two days before the act was alleged to have been committed. The case was decided to be an opium delusion. Soon after this she became an open morphinist.

Opium is not often used in this country for criminal purposes. Its effects are well known and its detection almost certain, hence it is seldom used except by novices. In India and southern countries

it is prominent as a source of poisoning. It is given with the food or drink in small doses, often repeated, until the person is in a state of stupor and semi-unconsciousness.

In some instances opium is given to foster delusions in the mind of the person and to increase his boldness and capacity for crime. In India opium is said to be administered with hashisch to increase the boldness and give direction to the delusions which the hemp has produced. In some shops these drugs are seen together, and they are sold for the purpose of giving energy and steadiness to purposes and plans of mental activity.

The reports of the Indian lunatic asylums mention ganja or hemp as a very prominent cause of insanity. It is well known that opium is nearly always associated with it. The presence of the insane impulse called "running amuck" has been traced to the use of hemp and opium, and is sometimes controlled by the latter when the effects of the former have passed away.

In Central India there is a class of persons who are called professional druggers, who, for pay, administer opium and other drugs to make the person amenable to the will of those who wish to use him for a criminal purpose. The opium or hashisch is introduced secretly into the food and the person is either robbed or persuaded to do some thing desired. Manias and delirium coming on suddenly in these

warm countries are often found to come from the use of opium.

In this country a few capital cases have come into prominence where opium was probably used for a criminal purpose. But unless the facts are carefully studied and unmistakable, there should be great doubt of its special responsibility.

In the large cities persons found unconscious after having been robbed, are not infrequently made so by the use of opium. But it is seldom used by criminals to supply personal courage. At the best, it can do little more than destroy the ethical sense and all reasoning as to the consequences of the act, and where crime is committed by a criminal who is under the influence of opium, it often lacks the ordinary sagacity and cunning in concealing the act so common in other persons. It is also clear that a person under the influence of opium has less vigor of resistance. If attacked, he makes a very feeble resistance and will easily succumb.

Cases of opium-poisoning for criminal purposes are frequently concealed by drowning. Persons found in a river and supposed to have committed suicide or accidentally fallen in, are undoubtedly, in many instances, stupefied by opium, assaulted and robbed, and then thrown into the river.

The following are examples of mental conditions which have been noted in certain morphinists:

A judge of eminence and great mental ability was noticed to show mental disturbances at times. He would appear confused and express himself in exactly opposite statements, then adjourn court for a few moments, and upon returning exhibit all his former acuteness. His general appearance showed neglect and carelessness, and his manner was either impulsive or deliberate. It was found afterward that he used morphin by the needle. Several of his decisions were reversed, yet he showed great acumen in defending his judgments by the accumulation of authorities supporting his position. In a case tried before him in which the mental competency of the seller of a piece of property was questioned from the fact that he was a morphin-taker, he gave a very strong decision supporting the claim of irresponsibility, charging the jury that morphinism is a disease, and all users of it incompetent and not able to discriminate in matters requiring sound judgment. At the same time he was himself under the influence of the drug.

A similar case was that of an expert physician who swore positively to the insanity of a criminal who had committed crime, acting under the influence of morphin and alcohol, and, while he was himself under the influence of the drug, sustained a very minute examination by the opposing counsel.

CHAPTER X

COCAINISM: ITS ETIOLOGY AND TREATMENT

First Described as a Disease. Theories of the Value of Cocain. Cheapening the Cost of Production. Use by the Needle. Exten of Its Use. Where Sold. Two Classes Suffer from Its Use More Than Others. Early Causes of Cocain Habit in Previous Spirit and Drug Addiction. Different Reasons for the Use of Cocain. Two Forms of Cocainism. Some General Symptoms. Delusions of Strength and Vigor. Later Symptoms. Comparison with Morphinism. Pathology and Injurious Effects. Treatment and Legal Care Necessary.

It has been known for a long time to the natives of many of the South American States that the leaves of the Erythroxylon Coca plant contain some invigorating principle which overcomes fatigue and increases the power of endurance, but the fact that the alkaloid of this plant, cocain, is one of the most subtle and dangerous intoxicants is practically new to medical science.

The general physiologic action of this drug as a local anesthetic was first described in 1866; but twenty years afterward Erlenmeyer gave the history of many cases of cocainism, and pointed out this disease for the first time. Many quite eminent men denied that cocainism was a distinct disease and an addiction. They explained the intoxicating symp-

toms as due to other drugs and conditions of the body. One physician asserted that he had used cocain in large doses, personally and in his practice, without any poison symptoms. Another claimed that there was no danger from its use unless complicated with other drugs. A third physician and author urged that it be given as a tonic for muscular and mental fatigue and exhaustion, and cited cases to sustain this counsel. Two of these physicians died from diseases directly following the use of cocain.

The cheapening of this drug has greatly increased its use and popularity in prescriptions where pain and irritation are to be overcome. Used by the needle for local anesthesia, it has become prominent by the absence of unpleasant after-symptoms, and the conviction of its safety has increased. Whenever it has become an addiction, the victim is always possessed with the idea that there is a moderate, safe use of the drug, which it is possible to attain.

There are many reasons for believing that the strictly medicinal use of cocain has not increased very rapidly, owing to its variable effects. Dentists, and throat, nose, and eye specialists, also surgeons, use it most freely. It enters very largely into many popular prescriptions and proprietary combinations of drugs, but there are no reliable statistics which indicate the extent of its use.

The custom-house reports indicate an enormous increase in the importations of cocain every year, and while the price is falling, the demand is greater and increasing quantities are sold. Inquiries in the large cities show that only a small percentage of cocain is consumed legitimately. In Philadelphia less than 4 per cent. of the cocain sold went to physicians, dentists, specialists, and hospitals. In New York, Boston, Chicago, St. Louis, and other cities from 3 to 8 per cent. only could be accounted for in legitimate ways.

As there are no restrictions or laws regulating its sale in most towns and cities, it is difficult to trace its final consumption. Statistics of drug-store sales bring out many curious facts. Thus, in the lowest sections of the cities cocain is in great demand in both drug and grocery stores. Tramp peddlers carry cocain and morphin to sell. Cocain is sold openly, and is eagerly sought for the quiet, dreamy satisfaction which it brings, which makes it very fascinating. When the pauper classes are unable to procure the drug honestly, they become thieves to secure the means to buy it. When in jail and deprived of the drug, they become delirious and are difficult to manage. Usually they are delusionally excited, not combative, but full of delirious exaltation, with dread of injury and suffering, and are very talkative and boisterous in manner.

The drug-stores in the wealthy sections sell large quantities of cocain, both with and without prescription. Formulas containing cocain in large amounts are popular, and in great demand. The preparations most commonly sold are called "cold" and "catarrhal" remedies, which are practically nothing but cocain.

In a Connecticut village, where many of the people worked in a dusty factory, a physician's prescription of cocain for catarrh became very popular. At one time over a hundred people were using it. Then its contents became known, and its sale was restricted, but at least three of these persons became addicted to its use.

Cocainism seems limited to persons in early and middle life, and is most commonly seen among neurotics and brainworkers. To the sensitive, highly developed organization cocain brings most soothing relief. To the stupid, dull, imbecile brain it is a revelation of comfort and rest that is very fascinating. To the worn-out and nerve-exhausted man it gives a temporary fictitious strength and vigor which are impressive. To the sufferer and careworn it brings calm and peace. Cocainism is a new disease of civilization, falling most heavily on the extremes of society —the wealthy and the pauper classes; and also on the highly intellectual, also the dull and stupid people.

Probably the greater number of persons who use

this drug have previously taken alcohol, or some form of opium or other drugs. From the effects of these drugs general disturbances and derangements of the body follow, and cocain is used with most pleasing results for a short time. The morphinist finds cocain a perfect substitute for the depression which follows the use of the opium drug. The alcoholist is charmed with the relief which comes from cocain and the new sensations and feeling of rest which it brings. For a time, cocain is taken alternately with spirits and other drugs. When its effects are unpleasant, it is abandoned for some other narcotic. In this way many cocainists are heroic drug-takers, using first one and then another, and always exhibiting a great variety of most complex mental and physical symptoms.

A second smaller class begin the use of cocain for the relief of pain, irritation, and discomfort. Its effects are so pleasant that they never abandon it. Catarrhal states are checked by the local anesthesia which it produces. Snuffing the powder and solutions is a very common way of using it.

Local neuralgias are checked at once by needle-injections of a solution of the drug. This is continued, and it is then taken for other disturbances of like character. States of exhaustion and intense depression are temporarily overcome by solutions of cocain. Insomnia and anxiety pass away as a result of the anesthetic action of this drug.

Cocainism has followed from its first use for catarrh, for gastritis, and for all forms of local and general neuralgia. It has been given for its anesthetic effects in injuries and operations, and used ever after. Physicians have used it personally for states of exhaustion and anemia, and contracted the addiction. In brief, almost every condition of pain, irritation, exhaustion, and discomfort has been the starting-point of cocainism.

A few persons have become addicted through the first use of cocain as a mere experiment to test its effects. The pleasing action made so profound an impression that it could not be given up. Neurotics and psychopaths, both from inheritance and by neglect of the laws of life and health, are common victims. After them come the worn-out, the crowded-out, and the nerve- and brain-disturbed victims of modern life.

Cocainism appears in two forms: One, the periodic; the other, the continuous.

The periodic form is marked by distinct free intervals in which all desire for the drug is lost. Then a state of unrest and physical and psychic pain comes on, and cocain is used again for several days or weeks, and then abandoned.

In the free interval the mental impression of the pleasing effects of the drug continues, and is seldom overcome by fears of its danger. The person will

assert that he will never use it again, but when the paroxysm returns will reason that there is little risk or danger in using it for present relief. Many of these periodic cases suffer from neurotic nerve-storms which precede the use of cocain.

In one case an attack of asthma, in another painful insomnia, in a third disturbances of the stomach and palpitation of the heart, preceded the use of cocain. The menstrual period in women, and digestive headaches in men, are also common early conditions.

The continuous use of cocain is seen in neurotics and exhausted persons, who frequently conceal its use and show great ingenuity in explaining any unusual conduct which may follow indulgences as due to other than the real cause. After a time nearly all cocain-takers become continuous users of the drug; then, in the efforts to conceal its effects, other narcotics are employed. In this way morphin, spirits, chloral, and many other drugs are taken, and the symptoms become complex and confusing.

All these cases are cocainists who take the drug when they can get it, and substitute some other drug if it is difficult to obtain. They want relief from some source, and any drug will answer their purpose which quiets the nervous system.

Cocainomaniacs are different: they become literally crazy until they can procure this drug. Nothing

will take its place. They suffer from an irresistible impulse for it, and their minds are filled with delirious thoughts of the pleasing effects which will ensue from its use.

In the examination of a delirious lunatic who required three men to restrain him, he whispered: "Get me five grains of cocain and I am sane." It was given him, and all the wild delirium subsided. He was transformed into a quiet, self-possessed man. He went to the asylum, and there was some doubt of his insanity by those who did not know his real condition.

The action of the cocain is to raise the rapidity of the heart, and, in large doses, the respiration. In a poisonous dose the temperature is raised, and, after a period of excitement, collapse follows. The principal action is that of exhilaration and a feeling of increased mental and muscular strength. The brain is stimulated and the sense of physical and mental well-being exaggerated. Pain and discomfort disappear.

When given by the needle, the nerves in the vicinity are anesthetized and all sense of local pain disappears. Its local paralyzing action is always marked, and in some instances this paralysis extends to all parts of the body, with a feeling of comfort.

A peculiar increase of brain-activity is a characteristic of cocainism. In this exaltation the patient soon develops delusions of superior strength

and vigor, and perfect command of himself. Later, hallucinations of voices appear, and then delusions of persecution and fears of personal injury fill the mind.

The cocainist in the early stages is always self-possessed, serene, and buoyant. Nothing disturbs him. He is very active, talks freely, and enjoys everything. Later, when the drug wears off, he becomes morose, excitable, and suspicious; cannot sleep at night, and worries at the prospect of trouble and danger. When the drug is taken again, the former good feeling returns. If he is a professional or business man, occasions for the return of the stimulation increase; and soon cocain is taken regularly, whenever reactionary symptoms come on.

Finally, intoxication stages appear, in which marked volubility and prolixity are common manifestations. The sense of good feeling creates an intense desire to talk about anything, without any definite purpose or object. If the cocainist is a lawyer, clergyman, political speaker, or lecturer, and the drug is taken immediately before appearing in public, great volubility will result. His thoughts will flow on in a continuous current. There will be no pauses and no dividing-lines, but one steady, connected flow of words, involved, and without point, direction, or end.

A noted clergyman, with a good voice, incurred the displeasure of his people by the length and pro-

lixity of his sermons. Later he was found to be a cocainist. An eminent medical lecturer would suddenly become oblivious of time and place in his lectures. He would widen his topic to such an extent as to be lost in its details, talking on without point or purpose, and never coming to a logical conclusion. He was a cocain-user, and this was an unmistakable symptom. A lawyer's plea before a jury in a recent trial bore the same marks.

Many political speeches and newspaper articles bring out this special form of prolixity and diffuseness. This differs widely from the broken, jarring sentences of alcoholists, morphinists, and other mental defectives. The style of the cocainist is a smooth, continuous, involved flow of words, leading in no direction and almost never ending. This delusionary state may be protracted for a long time, and can be seen in works of fiction, in poetry, and even in medical journals.

A common manifestation of this condition is in letter-writing. A cocainist will think to convey to some one an abstract truth or belief, and after the first sentence or paragraph the original purpose of the letter is forgotten. A cocainist wrote from four to ten letters a day to his wife about the care of his library and office. The closing of each letter suggested some new phase of the subject not written of before; and so it went on.

A cocainist who proposed to come under my care wrote me weekly for several months, from four to six letters, containing opinions, reflections, and suggestions covering nearly all topics of history, social science, and life generally.

In some instances this mania for letter-writing has taken on a slanderous aspect, but, curiously, the absence of bitter, sharp words and distinct charges indicate the cocain origin. Such letters usually contain slanders so involved and mixed that their meaning is only known by inference.

Amatory letters in the same diffuse style are common. Many letters in famous divorce trials show cocain-taking. The vagueness and obscurity of the word-grouping indicate this origin. This form of exaltation has been considered symptomatic of paresis.

A noted man was placed in an asylum as a paretic. After a delusional mania, with much exhaustion, he recovered. His mental state was due to cocain, which was not discovered at the time.

This first stage of mental exaltation is after a time followed by hallucinations of sight and hearing. Insomnia will come on, with muscular agitation and restlessness. Suspicious characters will appear watching him, and voices will be heard plotting to do him some injury. Then he will begin to take unusual precautions—buy revolvers and knives, and

have them ready for defense. Nearly all the cocainists the author has seen carried revolvers, and explained that attempts had been or would be made on their lives; so they were justified in preparing for them. When they reach this stage, other drugs are taken, generally morphin and spirits, and the cocainism is concealed.

The mental exaltation in the last stages is very brief, and long periods of restlessness and stupor follow, with disturbed mental stages that are very apparent.

The diagnosis of these cases is often very difficult. In a suspected case sometimes the only change noticed is an increased desire for mental and intellectual work, with an unusual satisfaction in all the conditions of life. Close study will show a falling-off in the character of the work and the degree of judgment displayed.

If a physician, defects of judgment and diminished recognition of ethical duties appear. If a clerygman or lawyer, his sense of the propriety and the right relation of things suffers. His work is less exact. If an active business man, his former caution and candor are less prominent.

Thus, in many ways there are mental changes, diminished capacities, and slight failures of the higher brain-relations. A careful study of the symptoms will show a disappearance of the buoyancy at

short intervals, and a disposition to go off alone for a time, with a return of self-confidence and elation. The cocainist differs from the alcoholist by his solitary habits, and from the morphinist by delusions of persecution in the later stages.

Later, when insomnia with extreme nervousness comes on, unless morphin or other narcotics are taken to conceal the symptoms, the diagnosis can be made by exclusion. General elation and solitary habits, with great buoyancy of spirits, are significant symptoms.

When cocain is used to lessen the pain and disturbance caused by spirits or opium, the peculiar mental symptoms of cocainism are wanting, and restlessness with insomnia follows. If cocain is the leading drug taken, short exalted periods occur with distinct delusions of persecution. The latter symptom is present in nearly all cases, whether cocain has been the primary or secondary drug taken.

The feeling of bugs crawling over the skin comes in the later stages, and is a very significant symptom. The appetite fails and anemia appears, particularly when other drugs or spirits are taken alternately. The disposition to follow any consecutive work grows less and less with the continuous drug-taking. With these come a general failure of ambition and will-power, and reckless, aimless thought and work.

No other narcotic known up to this time makes

such a pleasing physiologic impression on the brain. The new world of strength and physical happiness which it opens to the victim is never effaced by any ensuing pain and suffering. The patient has gone into a new land and experienced the bliss of perfect peace with the world, with complete command of his brain and enjoyment of active work. Ever after, when in trouble or suffering, the memory of this comes back, and with it the desire to live over again the experience and pleasure which it brought.

In morphinism, the rest and oblivion which the drug brings seem to offer escape from present trouble. In cocainism, the blissful satisfaction which comes from this drug is a foretaste of an ideal life. Hence the difficulty of overcoming this impression through any profound temporary aversion, growing out of the suffering and pain from the reaction of the drug. The cocainist will deplore his condition and make apparently every effort to overcome the diseased impulse, and yet relapse under any circumstances, though he may see clearly the peril of his condition.

If cocain is taken after alcohol or opium inebriety has begun, the impression is less vivid; the physiologic action is more anesthetic and less stimulating. In fatigue, in distress and suffering, the rapid and complete change following from the effects of cocain is never forgotten.

When morphin or spirits are taken after the cocain

addiction, the injury to the brain-centers is intensified, and both mania and dementia follow. Complete insanities of all forms appear. The prognosis of these cases is always grave. While recovery does sometimes take place, it is only from long, insistent care and treatment. Cases complicated with alcohol and opium are restored, but the danger of relapse is always very great.

The higher sensory neurons have become permanently altered, and the power of control is lost; the sense-centers are damaged and broken up. Sight, hearing, taste, smell, and sensation are seriously impaired. The removal of cocain is called for at once. Substitutes may be used to lessen the irritation and withdrawal symptoms. These should be vegetable narcotics, of which valerian, hyoscyamus, and others of this class are useful. The bromids are often valuable in large doses for a brief time. Chloral, alcoholics, and opium are unsafe. The insomnia must be treated largely by foods and baths, and the various functional disturbances of the body by appropriate remedies as called for in each case.

The conditions are largely starvation and cell-poisoning, and absolute change of surroundings and conditions of living is essential. The patient should be sent to an asylum and be kept under the care of a specialist until the acute symptoms pass away. Then the care of the family physician for a

long time is necessary, and the patient must follow exact lines of hygienic and medical direction.

The gravity of the case, and its recognition by both the physician and patient, should be fully understood. All conditions which provoked the first use of cocain should be avoided. The giving-up of the drug is only a small part of the treatment. A study of the causes and conditions which led up to its use, and their prevention and removal, are the central objects of correct treatment.

In cocainism the patient does not always co-operate with the physician, but, through fear and pride, conceals his real condition. Often the treatment must be based on close observation and inductive reasoning. The mind and body are seriously impaired and require joint treatment. This treatment must follow well-recognized principles, and be based on the condition of each case and its special necessities.

In conclusion: The fatal cases where cocain is given for its anesthetic effects are widely reported in medical literature, but cocainism, one of the most dangerous of drug addictions, has attracted little attention, and its literature is very brief and regarded with doubt and skepticism. There can be no doubt that cocainism is increasing. A variety of unmistakable symptoms sustains this assertion; symptoms seen in newspaper literature, in stories, novels,

medical writings—strange conduct, eccentricities, mysterious acts, and sudden deaths.

Its indiscriminate sale, without restrictions, in all drug-stores is one cause. Its reckless use by physicians, who accept the theories of teachers and others without practical experience, is another cause. The wide-spread credulity of its harmlessness in all cases within certain limits is another active cause. Its safe, legitimate use in medicine is limited; and it should be given with great caution, and always concealed from the patient. As a narcotic or substitute for other narcotics it is an exceedingly dangerous drug. The law should restrict its sale as a veritable poison, and its continuous use should be recognized as insanity, demanding prompt interference and control. Its use in proprietary medicines is a source of peril of greater magnitude than that of any form of opium.

Finally, cocainism has become a most serious drug addiction, whose victims are often physicians and professional men in all circles of life, together with the neurotics and drug-degenerates. There is only one way of escape for these poor drug-victims; that is, to give up everything and make a supreme effort for recovery. With the assistance of some trusted physician, in changed conditions and surroundings and the most favorable circumstances possible, the prospect of permanent cure and restoration is hopeful.

CHAPTER XI

CHLORALISM: ITS ETIOLOGY AND TREATMENT

Chloralism Seen in Women. Used for Insomnia. Irregular Action of the Heart Follows. Mistaken for Other Diseases. Persons Addicted.

Chloralism is another form of drug addiction, which has appeared more frequently among women. As in many other forms of drug disease, some previous neurosis and special predisposition are found to precede the first use of this drug.

While chloral may be given medicinally for some time without causing gastric or intestinal derangement or producing any particularly lasting effects that are notable, yet there is always the possibility of the cultivation of a craving for its use. Some authors believe that it is one of the most easily contracted addictions, from the fact that its effects are more pleasing, and its use can be continued in small doses for a long time.

The sleep that it produces is often very profound and followed by no unpleasant sensations on awakening, and this may be repeated many times without much disturbance. Chloral can often be taken secretly without any suspicion of its use. After a

time an irregular action of the heart and the increase of nervousness, with muscular unsteadiness and disordered digestion, appear. In elderly persons a form of cardiac asthma has been noted, with a tendency to delirium.

Among the symptoms noted in chloralists are tremors, sensory impairments, feeble mental action, intestinal disturbances, vasomotor troubles, including rashes and skin diseases; dyspnea with precordial distress, and even asphyxia, are recorded. Some authors have pointed out pains in the joints as symptomatic. These obscure symptoms, with others, finally merge into low muttering delirium, ending in acute inflammation and death.

Several cases are reported of delirium tremens which have been altogether due to chloral. The usual trembling, delusions of persecution, and hallucinations of sight and of loathsome, repelling animals occur. If the physician called to treat such a case should use alcohol freely, supposing it to result from the withdrawal of spirits, the mistake often would be fatal. Some observers have pointed out a peculiar blueness and venous congestion of the extremities, with marked listlessness and lack of energy, as prominent symptoms of this addiction.

Chloralism so far seems to be confined to the more prosperous classes of society, and occurs in highly organized and sensitive persons. Its first use is

often to procure sleep. It can be disguised in many ways, and constitutes the bulk of many compounds advertised as hypnotics. Several proprietary drugs on the market for headaches, insomnia, and other neurotic affections, contain chloral, and a number of addictions have followed their use.

It has been used in doses of from twenty to a hundred grains a day, showing an unusual toleration and immunity to its common effects. Many of these cases accustomed to use large doses daily will be attacked with extreme prostration and delirium, ending fatally.

Sudden palsies, with vasomotor disturbances, heart weakness, and low stages of delirium, should suggest chloralism, particularly where other drugs can be excluded. As in other drug cases where extreme neuralgias, insomnias, and painful conditions rapidly disappear into quiet, dreamless sleep, the assumption that chloral is used is very strong.

In criminal circles chloral in concentrated form is put into spirits and beers to narcotize the victim for the purpose of robbery. Such combinations are called "knock-out drops," and are very effectual in quickly narcotizing one already under the influence of spirits. This is readily explainable from the fact that chloral is composed of chlorin and alcohol, hence alcoholics would naturally be more susceptible to its effects.

Ordinarily chloralism is not a substitute for alcoholism, although it may follow morphinism for a short time; but the delirium which is the inevitable outcome of its toxic use prevents an addiction for any length of time, especially when associated with spirits.

When the fact is established that the person is addicted to chloral, it should be removed at once. First, the person should be isolated and placed in a position where restraint and control of the surroundings can be obtained; then the drug withdrawn. Alcohol, opium, chloroform, ether, or cocain should never be used in the treatment as substitutes. Only vegetable narcotics, such as valerian, lupulin, asafetida, bull nettle, and others of this class, should be given.

The usual tonic treatment with nux vomica, strychnin, and arsenic is required. The latter should be used for a long time. Mineral waters seem to be very efficacious. For the profound exhaustion and depression which follow, cinchona, iron, and the bitter tonics are excellent. Baths and massage should be taken daily, with every hygienic measure found essential.

Many chloral addictions have been mistaken for paralysis and organic affections of the cord and brain. An active early treatment will often clear away some of the confusing symptoms. When opium and alco-

hol are complicated with the addiction, the recovery will be slower.

The withdrawal symptoms are never severe, although sudden, unexpected death from various causes may occur at any time. All such cases require both physical and mental treatment, and the complexity of the symptoms and general derangement which follow are usually symptomatic, and disappear with rest and quietness.

The mental symptoms are not very pronounced, and are usually of a low, demented type. The delusions concern matters of food and drink and surroundings, and rarely extend beyond the most selfish range of thought. Fear of dying is more common than fear of injury, and anticipated disease is also a frequent dread.

The chloral-taker, like other drug-users, soon becomes anemic; has a glassy eye and shriveled appearance; eats irregularly, is secretive, avoids publicity, goes by himself, and is constantly explaining his condition as due to other causes. Early in the use of the drug motor disturbances appear, with trembling and agitation when the drug is withdrawn. The mind does not seem to be seriously affected except in the effort to conceal the condition. All effort, both mental and physical, is avoided. The chloral-taker is neither able nor disposed to attempt anything requiring consecutive thought.

Very few persons of this class acknowledge their addiction, and even when under treatment are deluded with the idea that other causes are more active and responsible. All such cases are irresponsible, and cannot be trusted to act consistently and sanely on matters in which they are interested.

The sudden death of an inebriate in criminal association and suspected crime should suggest the use of chloral. Several cases have been reported of drinking men dying in a profound stupor suggesting chloral narcotism.

A case noted in the daily press describes what undoubtedly occurs more frequently than is suspected. The victim was a respectable man of wealth, who drank periodically. He was seen partially intoxicated in a low saloon. Two hours later he was found dead in the street. He had been robbed, and after drinking beer suddenly became stupid and died. In another case, that of a periodic beer-drinker who died suddenly of profound narcotism, death was evidently caused by chloral, although it was difficult to trace its use.

Disreputable drug-stores have always a large trade in chloral and other narcotics. Chloral should always be suspected as the cause in cases of sudden profound stupor and death.

CHAPTER XII

CHLOROFORMISM: ITS ETIOLOGY AND TREATMENT

More Common. Follows from Neurotic States. Used for Specific Pain. After the Paroxysm Repulsion Follows. Periodicity. Secrecy. Tetanoid Symptoms Follow. Treatment. Change of Surroundings Required. Prognosis. Remedies Useful.

The use of chloroform for its narcotic effects is becoming more common, and already a number of cases have been reported which indicate its prevalence in many circles. Nearly all cases seem to follow from some previous narcotic addiction. Thus from the insomnia and wretchedness which follow the withdrawal symptoms of alcohol or opium relief is obtained by the inhalation of chloroform. Frequently chloroform is used to break up the drink craze, and later its effects are so pleasant that it takes the place of the alcohol or opium.

In most of the cases reported its first use was for some acute pain or distressing condition of insomnia, or some peculiar irritation associated with exhaustion. The relief has been so prompt that the repetition of the drug was demanded. The odor is also very attractive, and for many persons has a peculiar

fascination. This, with the dreamy oblivion which follows, creates a profound impression on the nerve-centers.

In all cases chloroform is first used for some specific purpose. If the use is continued, an addiction follows. Often this is periodic, with long, uncertain free intervals. In most instances it is used at night. In the later stages it is used at any time, and is followed by degrees of mania and melancholia. After a prolonged stupor a feeling of repulsion follows, and the derangement and general malaise gradually wear off in two or three days.

In the periodic cases the stated intervals sometimes occur weeks and months apart, the attack being preceded by a degree of hyperexcitability associated with insomnia and extreme restlessness, impending fears, and dread of some serious disaster. Drugs will be repelled. Morphin and spirits, when taken, seem rather to increase than diminish the suffering. Finally the desire will come on to have the oblivion of chloroform stupor. A quantity will be secured and the conditions arranged for the inhalation. This will sometimes extend over one or two days, until the stomach revolts and nausea and vomiting follow. Then the nerve symptoms seem to subside and a great effort is made to recover. A long free interval follows, and the same scene will be re-enacted.

The intervals growing shorter, sometimes opium is taken to lessen the abstinence symptoms; then the effort to abandon this drug intensifies the desire for the chloroform narcotism.

In one instance a man who by accident had found relief from the inhalation of chloroform, and became addicted to its use, had certain stated intervals in which chloroform was taken. For several years these intervals were exactly four months, at the termination of which he would retire to some secluded place and inhale one or more pounds of chloroform; then recover and resume his business again. The interval was spent in careful hygienic living, uniform work, and efforts to build up the system and to break up this paroxysm. To his friends and physicians he expressed intense anxiety to be protected, but when the time approached became secretive, and provided by arranging his business so that nothing would suffer during his absence; then gave way to the impulse, and despite all efforts could not be restrained. These attacks continued for several years, until death from acute inflammatory conditions ensued.

Of these inflammatory conditions, neuritis is the most common, and most cases end from tetanic paroxysms. Sudden death from syncope is also common.

The fascination for this drug becomes an insane impulse which possesses both mind and body beyond

all power of reason and control. Often it bursts out suddenly without premonition. A favorable opportunity to procure it or the odor of the drug seems to provoke the desire, which at once becomes an obsession. After this impulse dies out the efforts for recovery are equally earnest and energetic. While showing great anxiety and dread, and doing all that is possible to prevent relapse, yet the slightest opportunity to procure the drug and conceal it is taken advantage of. The impulse is so overpowering that although it may be concealed for the time, it constantly seeks the means and opportunity for its gratification.

There is in this a pronounced insanity, with an extreme liability to take on most unexpected types and symptoms. While it is always possible to overcome this impulse with morphin or other drugs, yet the fascination from the memory of chloroform narcotism is never effaced.

Some very interesting cases of the mental disorders following the use of chloroform were described by Dr. Savage in 1898. Since that time a number of cases have been reported, some of them becoming literal chloroform manias, others taking various forms of mania and melancholia with complex symptoms. These cases were largely persons who after the anesthesia from chloroform for some specific purpose, such as surgical operation or pain parox-

ysm, became maniacs. The stupor from chloroform developed mental excitement, delirium, and delusions.

One of these instances was that of a lady who used chloroform daily for toothache, and continued maniacal for several weeks. A second example was that of a surgical operation on the rectum, after which the man remained demented for a long time; then suddenly recovered, and had no recollection of what had happened during the time that had elapsed since the operation. Cases of puerperal insanity where the use of chloroform during labor was followed by delirium are recorded.

A case still more remarkable seemed to follow the use of chloroform for paroxysmal headache. In this instance for over a week the patient was partially demented, not knowing where he was and having delusions of contentment, laughing and smiling at everything that occurred about him. He recovered, and a year afterward began to frequently use small quantities of chloroform at night. The next day he was stupid and dull, and the second day recovered, and appeared well until another attack.

Evidently these cases were neurotics with a peculiar nervous idiosyncrasy that found most grateful relief in this form of narcotic. The treatment in this form of drug-addiction is removal of the drug at once and change of surroundings and conditions of living.

Physical exercise, with baths, tonics, and attention to diet, are the therapeutic measures most essential.

When the person is not accustomed to other narcotics, this craze is one of insane impulse, which, although it may be suppressed by morphin or other drugs, persists until it is gratified. Usually irritative melancholy, with restlessness and strange half-imbecile conduct, indicates the presence of this impulse.

In one instance a man who repeatedly used this drug, and always appealed to his physician for help when the paroxysm was over, and at the same time intrigued to procure it again, was taken to a hospital, given morphin, and put to bed. Two hours afterward he was found by the nurse wandering round trying to escape by the window. He was seized, dragged to a shower-bath, and thoroughly showered with cold water and rubbed, then put to bed. The effect was charming; all desire for narcotism passed away. A week later the same means were tried in his own house with success.

Chloral does not act well; it is rather an excitant than a narcotic in such cases, and the stimulation which comes from its use is often followed by greater depression. Bromids in large doses have been tried, but their continued use is injurious, and the depression which follows is marked and difficult to overcome.

Opium in any form may be given, but should be concealed. There is danger that it may take the place of chloroform; and if it does not act promptly, it should not be used. In all instances attention should be paid to the nutrition and the alimentary canal. Mineral cathartics and saline drinks are very valuable.

Recovery from the stupor is often accelerated by coffee infusion, salt bathing, and mineral acids. After recovery, arsenate of iron or the iodid of potassium should be given for some time.

If the case is kept under careful observation, the premonitory symptoms of the approaching paroxysm may be anticipated, first, by vegetable narcotics and Turkish baths; and every means to divert the mind and rouse a new set of thoughts to overcome the impulses should be employed.

Often active catharsis is of value, indicating that possibly some state of autointoxication may precede and excite the chloroform impulse. In some instances active exercise, change of scenery, and every other means that will possibly divert the functional activities of the mind and body should be employed.

Often with the increase of the addiction there will be associated greater ingenuity and cunning to cover up the impulse and secure opportunities for its gratification. In the few cases noted, active heroic measures have impressed the organism so thoroughly

as to break up the impulse and restore the mental equilibrium.

The use of alcohol is always dangerous, increasing the degeneration and provoking mental symptoms which are significant of nerve change. In all cases the patient should be under the constant care of the attendant and physician, and every dangerous symptom should be watched and provided against.

When chloroform is given for surgical operation or for convulsive pain, and is not followed by any unpleasant effects, such as headache and nausea, it should be considered as particularly dangerous, through the liability of an addiction, and should never be used except in emergency.

When chloroformism occurs in middle or later life, the prognosis is very serious. The results are usually fatal from syncope and tetanoid spasms. When it occurs in early life, the prognosis is better. In all cases there are serious defects of both mind and body, which require skilful and prolonged treatment in special surroundings.

Some years ago the question was raised in the criminal courts whether chloroform could be used for criminal purposes without the knowledge of the person on whom it was used. In the discussion which followed many very curious facts appeared, the final conclusion of which was that a certain very small proportion of persons, under the most favora-

ble and exceptional conditions, might be narcotized by chloroform without their knowledge. These were only exceptional cases, and the statement that persons had been put to sleep by this drug without their knowledge was very largely mythical. If the person was under the influence of some other narcotic, such as alcohol or opium, it was possible to deepen the narcotism into a profound sleep by inhalation of chloroform given with circumspection and care. In all cases it was found that the effect of inhalation was irritating to the mucous membrane, and produced coughing and a feeling of strangulation, which in most cases startled the consciousness to wakefulness. This consciousness of the situation might be very brief, but in most instances it would be associated with alarm, and the patient would start up in resistance.

In a prominent case where the man came home stupid from alcohol a cone with chloroform vapor was applied to his mouth, and he was heard to cough and mutter as if in resistance. Two hours later he was found dead. The odor of chloroform pointed to the drug used to produce death. In another instance a drunken man was awakened at the effort to chloroform him, and became suddenly delirious, and violent to those about him.

There are, no doubt, persons susceptible to the

narcotism of chloroform who after only a brief moment of excitement are overcome by its influence.

The experience of large hospitals in the use of chloroform as an anesthetic confirms these facts, and shows the difficulties of producing narcotism against the will of the person. In all probability persons in deep sleep would be awakened by the first inhalation of chloroform vapor, and, at all events, it would require extraordinary care and persistence on the part of the criminal to produce sleep from this drug. The persistence of the odor in the room and on the breath and in the clothes of the person would afford diagnostic evidence of an unmistakable character.

It is not disputed that persons may be held and forcibly made to inhale the chloroform, and in this way become stupefied, but such cases are rare, and if death follows it will be from heart collapse. Several medicolegal questions are still unsolved in regard to the use of chloroform for criminal purposes. At present it is safe to assume that this is a very impracticable drug for forcible narcotism.

CHAPTER XIII

COFFEE ADDICTION

Its Peculiar Symptoms. Questions of Medicolegal Interest which Come from Such Cases. Associated with Other Addictions. Effects on Young Persons.

Coffee addiction is of the same class of neuroses, only not so prominent. The widespread use of coffee has been followed by extensive adulteration, which lessens its injurious action on the body. Coffee-drinkers or those who use it to great excess soon suffer from insomnia and nervousness, and when they realize the cause, abandon it. The craze for coffee is rarely so intense and never so long continued as that for other drugs, and can be more easily broken up by substitutes.

In some extreme cases delusional states of a grandiose character appear; rarely violent or destructive, but usually of a reckless, unthinking variety. Associated with these are suspicions of wrong and injustice from others; also extravagant credulity and skepticism.

Some very curious instances of coffee intoxication have been reported. One, of a prominent general

in a noted battle in the Civil War: after drinking several cups of coffee he appeared on the front of the line, exposing himself with great recklessness, shouting and waving his hat as if in a delirium, giving orders and swearing in the most extraordinary manner. He was supposed to be intoxicated. Afterward it was found that he had used nothing but coffee.

On another occasion a prominent political orator astonished his audience by a wild harangue of exclamatory sentences, ending in threats and predictions. Later it was found that he had drunk freely of coffee for twenty-four hours or more, and was suffering from a veritable coffee delirium.

Often coffee drinkers, finding the drug to be unpleasant, turn to other narcotics, of which opium and alcohol are most common. The treatment of these cases is along the line of general principles, elimination by baths, with catharsis, nerve and brain rest.

A very interesting question was raised in a disputed will case as to the capacity of the executor of a will who drank coffee in large quantities, and was in an excited state continuously. It was shown that he had mild delusions, believed himself possessed of great wealth, assumed that his disposition of property was perfectly clear, and would not permit alteration. He was insomniac, trembling, and de-

scribed by one witness as having delirium tremens. The will was put aside because of these and other facts.

There can be no question that both tea and coffee habitués are impaired in mind and body, and their acts and conduct may in certain cases be open to serious question.

A recent writer, Dr. Leszynsky, has called attention to acute and chronic caffeinism. On the general subject he writes as follows:

"I have seen victims of the coffee-habit among commercial travelers, brokers, merchants, actors, writers, and men connected with the news departments of the daily papers. In fact, they are strikingly frequent among those who are working under high pressure, and whose occupation requires a great deal of talking or mental activity. In order to produce the desired stimulation, they find it necessary continually to increase the dosage, just like those who have the 'alcohol habit' or the 'opium habit.' Their general health becomes impaired, and the functional activity of every organ may be affected. They usually complain of the following symptoms, which are more or less pronounced, and in varying combination: general headache and 'nervousness'; apprehension in regard to some unknown impending trouble; mental depression and irritability; insomnia or restless sleep; 'bad dreams'; sudden 'starting' in sleep and awaking in profuse

perspiration; occasional or frequent vertigo; general tremulousness and diminished muscular power; precordial oppression; cardiac palpitation; loss of appetite; frequent eructation of gas, and constipation. The symptom-complex most commonly noted is: general nervousness; tremor; vertigo; restless sleep; cardiac palpitation; eructation of gas; and constipation. On examination we usually find a coated and tremulous tongue; tremor in the eyelids while standing with closed eyes; in some the pupils are slightly dilated, but react quickly to light; tremor in both outstretched hands; rapid pulse, of low tension and frequently irregular, ranging from 90 to 130; exaggerated reflexes, and more or less increased reflex irritability. Tachycardia or bradycardia may also be present.

"It must be seen that this entire series of neurasthenic symptoms may result from other causes, such as the excessive use of alcohol, tea, or cocoa, or from a combination of several factors. As a general rule, it is most frequently mistaken for chronic alcoholic toxemia. It is not difficult to determine by a process of exclusion, however, that the condition in question is beyond any doubt attributable to excessive coffee drinking. Very often some of these patients are intemperate in other directions, or they may also be addicted to the use of alcohol. In my experience, the majority of those who suffer from the

results of the 'coffee habit' drink alcoholic or malt liquors either only occasionally or not at all, being satisfied with the cerebral stimulation produced by the coffee. It is not unusual for many of them to drink from six to eight cupfuls of coffee daily, while some have been known to drink from twelve to fourteen cupfuls in as many hours. In some, symptoms of chronic poisoning may result from three or four cupfuls daily. Such persons do not take suitable or sufficient food, and as coffee possesses but little nutritive value, they ultimately show unmistakable evidence of malnutrition in addition to their other symptoms.

"In this connection it is interesting to mention that physiologic experiment has shown that after substituting infusion of coffee for water, inanition became more marked in those animals fed only upon hydrocarbons, while in those fed exclusively upon meat, the malnutrition was not so pronounced. This fact may explain the loss of weight among the poor patients of this class, whose dietary consists principally of carbonaceous food.

"There is a peculiar difference between the symptoms of acute and chronic coffee-poisoning. In the former, when coffee is taken in large doses by persons unaccustomed to its use, it produces excitability to the degree of delirium, etc. In the latter, which is of greater importance on account of its more frequent

occurrence, the toxemia manifests itself as a depressive form of neurasthenia. In brief, the symptoms of chronic coffeeism are indicative of interference with the nutrition of the cells of the cerebrospinal system resulting from overstimulation and autotoxemia, and correspond very closely with the symptoms of chronic alcoholism, for which it is so often mistaken. Age, sex, temperament, constitution, and occupation, which occasion individual susceptibility, must be considered prominent predisposing factors in this disease. For obvious reasons, women are more addicted to the coffee habit than men."

Several Continental observers have described coffee-poisoning occurring among poor people, and probably arising from strong infusions of coffee used in great excess with food. The symptoms are intense nausea, vomiting, acid eructations, with cramps of the muscles of the legs, insomnia, and emaciation.

These symptoms have been referred to alcohol, and seem to be identical with poisoning from this source. The removal of coffee is followed by their disappearance, showing that this was the particular cause. Where alcohol is not used, these symptoms indicate caffeinism, and are preceded by trembling of the legs and arms, twitching of the lips and muscles of the face, dilated nostrils, and increased heart's action. Many people believe that coffee contains

some food elements, and hence its substitution where food is scarce and of imperfect quality. In such cases a distaste for solid food appears very early, and the patient confines his diet to bread and other cereals soaked in coffee.

The differential diagnosis between caffeinism and alcoholic gastritis is sometimes difficult. The emaciation and extreme nervousness, in addition to the other symptoms, are the most prominent. Dyspepsia and nausea occurring in both cases will decline from the removal of one or the other, and in this way the particular cause can be determined.

Some of these persons drink beer or wine at meals in addition to large quantities of coffee. Probably the effects of alcohol and coffee neutralize each other for the time. But both are very serious, and require active treatment.

The virtues of coffee are found by experiment to be entirely subjective, and to depend upon its exhilarant action upon the mental processes. The popular idea that it takes the place of food and increases the power for work without corresponding tissue change is found to be erroneous. Large experience shows that the use of coffee should be inquired into in all cases of nervous disease, and that its influence should be studied as carefully as that of alcohol or opium.

Its effects upon the nervous system of children

have been noted in many instances to be deleterious. Many children who exhibit precocity and functional exaltation are found to be using coffee. In some instances it is decidedly poisonous. It should always be remembered that the delicate nervous system of a child is peculiarly susceptible to the effects of coffee. Often neurasthenics and overworked and underfed men and women suffer seriously from coffee, which to them seems to cover up and conceal the real condition.

In the treatment of these cases immediate and total abstinence should be the rule. It is possible to use cocoa as a substitute for a time, and thus relieve the withdrawal symptoms, but usually baths, careful attention to the diet and excretions, together with prolonged rest cure, are most effectual.

CHAPTER XIV

TEA INEBRIETY

Is Increasing. A Most Complex Neurosis Affecting Large Numbers of Women. Peculiar Symptoms which are Often Mistaken for Other Diseases. Treatment and Prevention.

Tea inebriety is one of those peculiar addictions that come occasionally under medical notice. The fact is well recognized in all medical circles that a considerable number of persons seriously injure themselves by the excessive use of tea. The usual symptoms are gastric derangements, neuralgias, with muscular twitchings and tremblings, and great irritability with hyperexcitability.

In some instances delusions of fear, particularly of injury and of some chronic disease and sudden death, are common. There are often hallucinations of voices and threatening sounds at night. Painful insomnia, nightmare, and bad dreams are the most common symptoms. Many of the victims are single women, past middle life; others are neurotic men, suffering from neurasthenia and various forms of nerve-exhaustion.

In many of these cases the physician is called to treat sudden attacks of delirium and delusions of

some extraordinary character, such as the appearance of tumors and disease, or infection or contagious poisons, all based upon subjective symptoms. These conditions last several days with varying intensity. If tea is suspected as the cause, and removed, these states rapidly pass away. If not, they continue, but are amenable to treatment.

Digestive disturbances, of which constipation is very common, are present. Non-assimilation of food from failure of the digestion is followed by starvation and loss of flesh. The heart is affected, and states of exhaustion from the slightest exertion are common.

The action of thein affecting the cerebral centers varies widely, although its first effect is primarily on the nervous system, and secondarily on the organism. The tannic acid in the tea acts as an astringent, disturbing digestion and breaking up the normal physiologic changes. It is probable that the essential oils, besides disturbing the digestion, have a special action on the brain-centers, producing excitement of the circulation, rapid pulse, and later muscular tremor. It is said by some authorities that the injury from tea-drinking is due indirectly to the metamorphosis of the nutrient elements as toxic agents and their retention and action as poisonous products.

The late Dr. Wood, in some experiments, showed

that tannin rendered certain digestive fluids inert, and that through chemical changes these formed by-products that were poisonous. Persons using large quantities of tea show a decrease in the amount of carbon dioxid expired. The sensory faculties are diminished and the power of control is lessened. The vital forces seemingly are diverted and changed, although the feeling of greater strength is present. Dr. Wood gave a table of the action of thein and caffein which gives some idea of their influence on the organism:

Thein.	Caffein.
Affects sensory system.	Affects motor system.
Produces neuralgia.	Does not.
Causes spasms.	Does so late, if at all.
Causes convulsions.	Does so late, if at all.
Impairs or abolishes nasal reflex.	Does so late, if at all.
Diminishes temperature.	Increases temperature.
Is astringent.	Is relaxing.
Dilates capillaries of splanchnic arcade.	Contracts the same.
Mildly diuretic.	Is powerfully so.
Causes irregular and feeble cardiac action.	Causes strong and regular cardiac action.
Causes sinking sensation in epigastrium.	Relieves the same.
Causes sick headache.	Relieves the same.
Opposes active nutrition.	Increases nutrition and tone of the system.

This table, giving a comparative summary of the effects of tea, makes it clear that its addiction is a

very serious matter. Many obscure neurotic cases will be found to proceed from the poison of tea.

The treatment of cases of this kind is very largely by active hygienic measures, supplemented with mineral tonics and bitter barks, and also acid drinks. Much attention should be paid to the action of the bowels and skin, which in all cases are seriously disturbed.

In some parts of Europe tea cigarettes have been made, and used for their effects, the action being the same substantially as that from the infusion. Cigarettes are made in this country, and used in some circles, but are not popular.

Drug-takers sometimes turn to tea either in the form of a cigarette or an infusion. While the effects are pleasing, they are so transient as to be unsatisfactory. Tea has been used as a substitute in the withdrawal of opium, and in alcoholic cases, but in most instances it produces more general nerve disturbances than it allays.

The continuous and excessive use of tea may be considered not only an active cause of serious neurosis, but also a prominent symptom of psychosis which may merge into many and complex disorders. To some persons tea is a dangerous stimulant, and leads rapidly to other disorders, which are not recognized as coming from this source.

CHAPTER XV

TOBACCO INEBRIETY

The Poison of Tobacco. Symptoms of Tobacco Intoxication. Often Associated with Alcohol and Other Drugs. Tobacco Narcotic Poisoning. Its Use in Any Form Followed by Debility and Exhaustion. Tobacco to be Abandoned in the Treatment of Drug Addictions. Often an Exciting Cause to Other Narcosis. Very Complex and Very Difficult of Treatment. The Cigarette Habit. Its Prevalence and Danger as Noted by Statistics. Analysis of the Cigarette. Poisons which It Contains. Its Immediate Effects. The Treatment of Cigarette Disease. Medicolegal Questions which Come from It.

EVERY one is familiar with the tobacco addiction; whether in the form of cigars and cigarettes or used for chewing, its effects are about the same. There can be no doubt that the use of tobacco is poisonous.

Its effects are very evident in its first use. The pale face, the clammy skin, the tremulous heart, intense nausea, and muscular relaxation are usual symptoms. Later, when the system is damaged by long use, the anemia, muscular trembling, general nervousness with debility, and defective sensory functions, are all unmistakable symptoms.

There are many cases on record of tobacco intoxication in which the person both smoked and chewed, and induced a state of stupor with extreme debility.

Very few persons come under medical care for this specific addiction who use tobacco to excess, but there is no doubt that they are physically disabled and suffering from a peculiar class of symptoms which should require active treatment.

The tobacco addiction is usually associated with alcohol or other drugs, hence the tobacco disability is seldom considered. In reality, tobacco is a narcotic poison, and its use is not only dangerous, but it is certain to be followed with debility, mental perversion, and exhaustion.

It is an interesting study to know how far the tobacco habitué is impaired mentally, and how far he could be called responsible for his conduct and thought. In the treatment of all drug addictions the tobacco complication should always be recognized and its use abandoned at the earliest possible moment. There is associated with it a very pronounced psychic element, which requires more mental treatment than in other addictions.

In some instances the removal of the tobacco addiction has been followed by the restoration of the patient. This one drug seems to have been the exciting cause of all the others. At all events, it contributes more or less in these neurotic cases to the growth and development of narcosis from many other drugs.

Recently oculists have called attention to amblyo-

pia from tobacco, and described it as a very common symptom. Railroads and companies employing men where clear vision is required find the tobacco-user defective and incapacitated. Statistics show that students and brain-workers who use tobacco have less vigor, both mental and physical, and are more liable to disease.

The efforts of quacks to treat the tobacco addiction have created the impression that it is easily curable. This is untrue, because of its complex character and the psychopathic conditions which enter into the causation. The direct poisonous action of nicotin can be removed, but the conditions which provoked and continued its use require prolonged, active treatment.

Recently the danger from cigarette smoking has come into considerable prominence. Dr. French has stated this peril under three heads:

First, cigarettes are used to very large extent by boys and young men.

Second, their attractive size and mild after-effects encourage their constant use.

Third, the smoke is inhaled more than in any other way of using tobacco.

Several statistical reports have clearly pointed out that the cigarette smoker is deficient physically and mentally compared with the non-user. Measurements of college men in Yale, Amherst, and other

large schools show that the cigarette smoker is deficient in his studies and physically weaker than the average student who abstains from tobacco. In the Polytechnic School in France all the cigarette smokers were inferior, hence the government prohibited students of all public schools from using cigarettes. Both at West Point and Annapolis cigarette smoking is prohibited. The special influence seems to be on the heart's action and diminution of the senses and mental activities. Other observations made show that the use of cigarettes is followed by disordered nutrition, retarded growth, general dulness of the senses, and, particularly, failure of the eyesight. Several papers have been read describing these conditions and tracing them particularly to the use of the cigarette.

Analysis of the cigarette has pointed out the presence of alkaloids of tobacco which are probably the active causes of these conditions. One authority states that cigarette smoking is particularly poisonous from the fact that larger surfaces for the absorption of the tobacco smoke are exposed in the use of cigarettes. The great volatility of nicotin, according to Dr. Reynolds, and the presence of numerous other poisonous substances in tobacco smoke indicate that nicotin is not the only active principle at work. It is probable that the poisonous effect of tobacco, not only on the optic nerve, but also on the system

generally, is increased by volatile alkaloids liberated during its combustion. It seems not unlikely that pyridin, and less markedly collidin, should be regarded as active toxic agents in this respect. It is possible that nicotin or one or more of the many principles freely present in tobacco smoke liberates some toxic influence which must be held accountable for the disease amblyopia, which, in other words, depends on a species of autointoxication. Hyperesthesia of the retina is one of the early symptoms of tobacco poisoning, and is soon followed by the appearance of a smokiness in the center of the field, which is greatly increased on exposure to bright illumination. After a while small type becomes indistinguishable, and a network or veil-like substance appears near the center of the field, obscuring a portion of long words, and making it impossible to read with satisfaction. Soon letters cannot be seen even with the aid of glasses. The color-sense is so reduced that neither red nor green are discernible. It is this failure of the sight, due directly to tobacco and not recognized by the victim, that makes it exceedingly dangerous for persons whose work depends upon their powers of vision.

Cigarette smoking possesses these and other dangers common to the tobacco habit.

A fact which is overlooked is that tobacco is rich in nitrate of potash, which greatly assists in the pro-

cess of combustion in smoking, and is converted into oxid of potash, the caustic properties of which are apparent in the mouths and throats of all smokers.

The charge against cigarettes is that they contain empyreumatic oil, nicotin, pyridin, and caustic potash in the smoke which comes from them, and, owing to their small size and mildness, are used in such numbers that a large quantity of this smoke is inhaled, which more than equals the high percentage of nicotin in other forms of smoking tobacco.

Dr. Reynolds says an agent which can produce cardiac disturbances, and so excite the brain as to make it impossible to concentrate the mind on one subject, followed by failing memory, incontinuity of thought, nervous excitement, with physical debility and muscular tremors, is dangerous beyond all estimate, particularly for young people.

While the facts are not all clearly known at present, it is very evident that cigarette smoking is dangerous, especially for young persons. The effects of tobacco on all persons are depressing and more or less injurious.

The treatment of the cigarette disease must be largely by hygienic measures and powerful mental impressions to counteract, if possible, the fascination of the cigarette. Various tonic drugs may be used to counteract the other conditions. Nux vomica will probably be found the most valuable, given in small

doses often repeated. Salines may be very influential in restoring the healthy metabolism of the body. The open air, exercise, and nutrition should be paramount in all treatment.

Some interesting questions have been proposed concerning the truthfulness and accuracy of persons who use tobacco in excess. In all probability there are cases in which the sensory impressions and the reasoning are very seriously impaired, and persons of this class are not good witnesses and cannot be depended upon concerning facts which have occurred some time before. Their memory is faulty, and both sight and hearing are equally depressed, hence it is a very doubtful matter if their statements can be depended upon in matters requiring great accuracy. At all events, the excessive user of tobacco is not an accurate, reliable man in all cases. If he is, it is an exception to the rule.

CHAPTER XVI

ETHER INEBRIETY

Confined to Certain Localities. Seen in North of Ireland. Its Effects. Easily Discovered. Cordials Containing Ethers Used. Cordials are Adulterated Extracts. Ethers not always Stimulants. Often Narcotics. Always Dangerous.

The use of ether as a beverage has so far been noted in certain distinct localities and is apparently dependent on certain special local conditions.

The most prominent use of ether as a beverage was noted in a little town in the north of Ireland. In some lumber and mining villages in this country cheap sulphuric ethers have been sold as drinks, and some cases of addiction have followed.

It is found that cheap alcoholic ethers have a peculiar fascination for certain persons because of the rapid tumultuous exhilaration and good feeling which follow their use.

In a village in the north of Ireland some dealers put on the market a cheap methylated spirit which was sold for one cent a glass. Its effects were so pleasing that it immediately became popular. Beer and stronger spirits were abandoned, and these ether

drinks were substituted. Poor men on their return from a hard day's work could become deliriously exhilarated for a few cents, then go home and sleep it off, and be apparently uninjured the next day. Hundreds of new victims to this mania followed. A widespread publicity was attracted to the place, and after a careful examination the government placed ether among the list of poisons which the law punishes by a severe penalty if sold to any but responsible persons for legitimate purposes.

The late Drs. Hart and Kerr made a careful examination and study of this new drug mania, and concluded that, notwithstanding the prohibition, ether-drinking was slowly increasing in other parts of the British Isles. Dr. Kerr was surprised that it had not spread more rapidly, and he has expressed an opinion that unless strong restrictive measures were used ether-drinking was destined to become a very prominent disease.

The symptoms are those of sudden, rapid intoxication, the excited stage of which is prolonged, and usually of a hilarious, joyous type, rarely leading to violent acts, yet liable, if opposition is offered, to do so at any moment. There seems to be a contagious excitement with extreme exhilaration of the senses and imagination. In a short time this is followed by dulness, which rapidly merges into stupor and sleep. In the little town mentioned parties of workmen

would fill the air with laughter and joyous shouts, and in the course of half an hour be found stupid and asleep on the roadside. They would then recover and go away depressed. After a time this depression deepened into melancholia and general debility, in which the digestion and sleep suffered most acutely.

The few cases which have been studied are mostly those of a previous alcoholic and opium addiction. Ether was taken up as more pleasant and agreeable than the other addictions. The mind in all these cases became more or less impaired, and in the end very serious troubles followed, which were extremely difficult to cure.

Recently among the better classes ether-drinking has appeared in the use of proprietary preparations containing ether disguised by pleasant flavoring substances. These are used by fashionable ladies and by men of leisure who wish to appear particularly brilliant in conversation on some special occasions. One firm in London, England, sells enormous quantities of two- and four-ounce mixtures which are used for this purpose. Probably after a time its effects wear off and other narcotics are substituted.

Many of these addictions are secret, and are followed by very obscure symptoms, particularly of hyperesthesia and anesthesia of different parts of the nervous system. The effects are so prominent that

it is no doubt readily traced, and can be easily discovered where it is used for any length of time.

Recently attention has been called to the prominence of so-called "cordials" with fanciful foreign names, sold in this country, supposed to be alcoholic combinations of great purity and value. Many instances have been reported of peculiar exhilaration and stupor following their use. Most of these cases are of persons who use daily or at intervals these peculiar drinks, and seem to be particularly exhilarated in the first stage. Later stupor and profound sleep follow. On recovery, headache, depression, and irritability of the stomach follow, for which the cordial is taken again. The exhilaration becomes shorter and the stupor and sleep more deep, followed by greater irritation and debility. The exhilaration seems to be of a more esthetic character than that from the coarser alcohols, and the sleep is more profound. The after-effects are practically the same. Some examinations have shown that these cordials are cheap ethers fortified with opium extracts, and are particularly dangerous not only in their effects on the system, but in the fascinating addiction which follows. Several of these cordials are supposed to be manufactured abroad, but are undoubtedly made here, and are evidently a combination of opium and ethers. The prevalent opinion that ethers are purely stimulant and very evanescent

in their action is not sustained by clinical experience. In certain instances they have been found to be profoundly narcotic. Whether this is due to some peculiarity of the person or to extreme susceptibility, or to some quality of the ether itself, is unknown. At all events, they may be classed among the narcotics whose effects are particularly fascinating and dangerous for most persons.

CHAPTER XVII

ADDICTIONS FROM OTHER DRUGS

Arsenic. Trional. Antipyrin. Ginger. Cologne. Gelsemium. Sulfonal. Paraldehyd. Lavender. Capsicum.

Arsenic is used as an addiction in several countries. In Austria there appear to be many towns in which arsenic is used for its stimulating effect. Probably among the very poor it was found to have a certain stimulating action on the brain and nervous system, hence its use was continued.

Dr. Oswald writes that in the city of Gratz a large number of persons use arsenic as they would tea or coffee. It gives them a certain buoyancy and sense of elation, and a clearness of intellect that is very unusual. After the effects have passed off they become moody, melancholic, and depressed, but commonly they do not permit themselves to give up the use of the drug, hence they go about with a buoyant disposition and equable temper, and seem to have much enjoyment in life.

A clear, waxlike complexion is a very characteristic symptom, and after a time some digestive disturbances appear or some nervous trembling. There can

be no doubt that there are a number of persons using arsenic secretly for its tonic effects.

In the later stages, after the drug has been used a long time, there is a peculiar tremor noticeable, which can be differentiated from that which follows from the use of alcohol or lead. Associated with this are frequently found palsies of the extensors, neuritis, and hemiplegias, with stiffness of joints. The glassy eye is another symptom; also a metallic odor, which is noted in the perspiration. The skin becomes pearly white and the face plump, with the wrinkles all smoothed out.

There is a certain tolerance which grows from the use of this drug permitting very large doses to be taken daily. A case of this kind came under the author's care. A man in middle life acknowledged that he was using twenty grains daily, and wished to abandon it. He was apparently vigorous and healthy, and except for a certain paleness and a glassy eye would have been considered in perfect health. He suffered from indigestion, and on attempting to abandon the drug was insomniac and had muscular trembling. This condition created fears of sudden death and dread of injury from accident. He was a traveling man, and found his power of endurance diminishing and had frequent flutterings of the heart, with stiffness of the legs and lower extremities. These symptoms alarmed him.

Baths, mineral tonics, such as the soda, iron, and phosphorous preparations, also bitter tonics and rest, enabled the amount to be reduced to five grains a day. During treatment he was melancholy and depressed, and grew more and more retiring in his manner and secret in his conduct. Finally he claimed to have received a special despatch to attend to some business in a distant town, and was never seen again. In all probability he relapsed.

There is a well-grounded belief that a large number of society women and others use arsenic for its effect on the skin, and receive from it a certain buoyancy and exhilaration which at first are agreeable. Fortunately these cases are not common, and when they come under medical care the symptoms are easily determined and the general plan of treatment is the same as in that of all other addictions.

Not infrequently postmortem analysis reveals arsenic, and a suspicion that this drug has been used for criminal purposes is excited. A more careful examination discloses the fact that it has been used medicinally or for some tonic effect. A prominent physician used this drug for many years, then suddenly developed obscure symptoms of paralysis, exhaustion, and general anemia, which ended in death. There was no suspicion at the time that the real cause was arsenic. Later, in settling up his estate,

the bills for arsenic showed him to have been addicted to its use.

There are, no doubt, certain persons who derive great relief and vigor from this drug, and use it for a time without showing any poisonous effects. There is some peculiar predisposition in the system which makes the drug tolerable and the person immune to its poisonous action. There is probably no remedy more widely used as a tonic, especially in malarious regions, and the possibility of its addiction should never be overlooked.

Trional is a drug which has come very much into vogue during the last few years. On its first introduction it was regarded by physicians as an absolutely safe hypnotic. There have been, however, cases in which some curious ill effects have been noticed. Stewart Hart quoted several such instances, and describes a case* under his own care in which there were neuritis and hematoporphyrinuria.

The patient was a lady, aged fifty, in wealthy circumstances, who had suffered from insomnia and dyspepsia for many years. She had taken a dose of fifteen grains of trional every other day, though occasionally intermitting for three or four days. After about two months she suddenly developed severe abdominal pain of a colicky character, with extreme nausea and vomiting. There was no pyrexia, ab-

* "Amer. Jour. Med. Sci.," April, 1901.

dominal tenderness, nor distention. These symptoms lasted for several days, rendering rectal alimentation necessary. The administration of trional was stopped, and morphin administered hypodermically. The urine, which had hitherto been normal, became dark red, and contained a trace of albumin. One day only twelve ounces of black urine were passed. No blood was present. This specimen gave the typical spectrum of hematoporphyrin. The pulse became intermittent, and an apex murmur was heard. A few days later there was tingling in both arms and the knee-jerks were absent. There was pain in the left elbow and the legs were weak. Tactile and thermic sensations were diminished, but not absent. Paresis appeared in the extensor muscles of the left arm and leg. Reaction of degeneration was obtained. From these symptoms the patient slowly and gradually improved, and the heart condition also cleared up. The writer considers that trional was the initial cause of this curious combination of gastric and neuritic symptoms.

As is well known, sulfonal is very apt to produce hematoporphyrinuria, and the similarity in chemical constitution of trional and sulfonal warrants such a supposition. The exact cause and mode of the production of the hematoporphyrinuria by this group of compounds is not as yet known. It has

been suggested that some irritation is produced in the kidneys, others think that the presence of hematoporphyrinuria is due to changes in the central nervous system. As regards the neuritis, it has also come to be recognized that the increased exhibition of coal-tar products within the last few years has apparently been followed by a relative increase in the number of cases showing neuritic symptoms.

Antipyrin.—Recently several cases have been reported of persons who used antipyrin in large doses continuously. At first pleasing sleep followed; then broken, troubled narcotism, associated with dreams and dread of dying, followed. In these cases inanition, anemia, cardiac failure, and general symptoms of great depression point to the real cause.

Many of these cases are associated with other drug-taking, and after a time this drug is abandoned, the symptoms becoming unpleasant, and the former drug taken up. Alcoholics and persons trying to escape from the opium habit are the most common victims.

In one instance reported antipyrin was taken for two years; then the patient died of pneumonia. It was found that he had used large quantities daily of this drug. The only symptoms manifest were great irritability associated with prolonged periods of stupor and general decline of health and vigor.

Jamaica ginger is another form of alcoholic addic-

tion which in some sections is used very largely. It is usually a form of cheap alcohol mixed with ginger, the latter being only a mild stimulant and irritant, the former having the same effect as other spirits.

Several cases have been reported in which its use was decided to be harmless and in no way responsible for the mental disturbances and irregular conduct following. This is incorrect. The use of Jamaica ginger containing from 10 to 40 per cent. of alcohol is precisely like that of other alcohols, and cases of this addiction should be treated in the same way, and are always followed by the same class of symptoms, though less prominent. The use of Jamaica ginger is not always safe, and, particularly where taken continuously, it is often an addiction perilous to the user.

Several cases are reported where the question arose of how far the use of Jamaica ginger would impair the ability of the patient to make a will or contract.

In one instance a clergyman sued for slander, claiming that the term "drunkard" applied to him because he had used large quantities of Jamaica ginger was wrong, and libelous. In the trial some very curious testimony was offered. Two physicians swore that Jamaica ginger could not produce inebriety and that no one could become intoxicated from it. The defense showed that the tincture of Jamaica ginger was an alcoholic drink, and had been declared

by the courts in several cases to be an intoxicant. The late Dr. Day swore that he had seen many cases fully intoxicated on this preparation alone; that some of these cases had been brought to his institution in both the irritant and narcotic stage, while protesting loudly that they never used spirits, and that their mental trouble was owing to other causes. This case ended in no cause of action, and the fact was established that the tincture of Jamaica ginger was an alcoholic and intoxicant.

The increasing demand for ginger extracts to be used in drinks is a very significant hint of a new phase of the morbid drink impulses of the age. There are several large establishments where ginger extracts are prepared and advertised as preventive medicines for the diseases of various seasons. The quality of alcohol used is usually the poorest, and there is every reason to believe, owing to its cheapness, that wood alcohol is often used.

Several authors have asserted that the excessive use of these extracts produces a distinct form of intoxication, marked by stupor and melancholia. In some instances seen by the writer great nutrient disturbances and inanition were present. The intoxication was less maniacal, and there was greater depression.

Many compounds are flavored with other substances and advertised as nerve tonics. It is quite

evident that these extracts are used by many people in the place of alcohol for its effects and without the odium which attaches to any one who uses spirits freely.

A man recently died from some unknown disease, and among his effects were found large numbers of Jamaica ginger bottles. It was evident that he was a secret drinker, and had used this extract in preference to other alcoholic drinks. The symptoms before his death were not recognized, and were supposed to result from some mental disturbance and organic disease.

Another form of addiction has been noted and described at some length by several writers as **Cologne narcosis.** In this addiction the narcotic action is simply that of alcohol, which is in most cases of an inferior kind, concealed by the flavoring qualities of cologne. It is probable that the odor is quite as much a fascination as that of the spirits.

The symptoms and conditions are those of exhilaration, extending to delirium; then depression, sleep, and melancholia. Obscure and complex nerve disorders associated with these cases readily disappear with the removal of the cause.

These are all alcoholic cases in which complex nutrient degenerations and nervous derangements are sure to follow. Delirium and delusions are also common, but not distinctive.

These odoriferous spirit compounds are always dangerous, whether used externally or internally by drug neurotics. When a person insists on surrounding himself with pungent odors, there is always a suspicion that they are taken to conceal the internal use of drugs, and also for some odor fascination which exists.

Gelsemium is another drug which after its use a short time becomes a pleasing narcotic and is continued. In the cases so far reported paleness, emaciation, and listlessness are the common symptoms. The mind is troubled with hallucinations, which, while seemingly real, are corrected after a while. The vision is always disturbed. Mental failure without any lesion follows, and the patient sinks into a kind of premature senile decay. The possibility of detection is very great, and such cases can rarely be concealed long.

Profound narcosis has followed its use in certain persons, and care should be exercised in giving it. Two cases are reported of death following its use where it was given in increasing doses until sleep came. An addiction may follow its long use, but this can be anticipated in most cases.

Sulfonal has become a modern addiction. Several cases have been reported of persons who have taken from two to three drams per diem of this drug. After a time it ceases to produce prolonged sleep.

In the cases reported excessive inanition and collapse have taken place.

The poison effect seems to fall most heavily on the heart, with symptoms of cardiac failure, shortness and slowing up of the beat, also mental symptoms of alarm and distress from the least exertion; these are the common symptoms. When using this drug, watch the action of the heart, and with the first sign of depression, stop it.

Paraldehyd has been used by some neurotics continuously for its effects, and it may be called one of the modern addictions. Excessive prostration and a low form of muttering delirium are the common symptoms.

The powerful odor of the drug prevents it from being concealed, and its rapid exhalation by the breath indicates the form of drug taken. The removal of the drug is very quickly followed by a change of all the symptoms, and the early causes are then uncovered for treatment.

Among neurotics it should always be taken into consideration that the use of paraldehyd may result in an addiction should the drug be found agreeable. A few cases have been reported, but they differ little from the ordinary alcoholic, and are so apparent in the odor of the breath as to be unmistakable.

Extract of lavender is another drug that has been used quite freely for its narcotic properties, depend-

ing, of course, upon the spirits which it contains. A New York house for several years prepared large quantities of this extract on special orders. It was found that it went to the homes of secret drinkers, particularly women in the better circles, and was used the same as any other spirit.

Extracts frequently contain from 10 to 30 per cent. of alcohol, and are literally alcoholic drinks. Other extracts, of wintergreen, peppermint, and other flavoring oils, have a fitful sale in different parts of the country, and are frequently replaced by stronger alcohols.

In some parts of England **capsicum extracts** are very popular, and become a daily addiction among those who have formerly used spirits. There is probably in these cases more nutrient disturbances than in others.

A proprietary liniment containing capsicum, opium, camphor, benzoin, guaiac, and alcohol, called a "pain killer," has been followed by several cases of addiction. The symptoms were those of profound anemia and mental depression, ending in death from acute nephritis.

In all probability many proprietary medicines containing alcohol and opium are the active and exciting causes of neuroses which are not recognized, and end fatally in some acute disease.

CHAPTER XVIII

SOME CONCLUSIONS

Different Drug Addictions. Narcomaniacs Common. Medico-legal Interest. Public Treatment. Private Treatment. Colony Settlements.

THESE are some of the most prominent and dangerous of the many drugs which are used for their narcotic or other effects until their use becomes a veritable mania.

In malarious countries the use of quinin often becomes an addiction, which is continued until death or some intervening influence stops its use. The anemia and general degeneration following its continuous addiction are attributed to other than the real cause. Spirits are sometimes associated with it to overcome the exhaustion, and the narcomania of quinin and whisky is very common in certain sections.

Morphinism not infrequently follows this addiction, and cases of an early history of this quinin addiction are found to be largely incurable. In certain sections of the country where botanic treatment has been prominent for a long time drug-manias are also more or less common. They begin frequently

among persons who are convinced that the vegetable world contains remedies for the cure of all diseases and disorders. In their search for these remedies they find some attractive drug, and ever after continue its use.

Most of these drug manias do not show disturbances of the senses and brain in the early stages, hence the injury is concealed for a long time. A number of drug manias have been reported where preparations of iron have been taken daily for a long time on the supposition that it was needed to sustain the brain and nervous system. Chlorid of sodium is another drug which has been used for the same purpose. In one instance a person who had taken it for years was suddenly deprived of its use by his family. Delirium followed, and he was taken to an asylum for treatment.

Other equally strange and peculiar drugs have been used continuously until veritable manias followed. Without doubt, a large proportion of the consumers of proprietary drugs are simply narcomaniacs in the early stages. Later they abandon these drugs for morphin, spirits, and other narcotics.

Recent researches as to the effects of alcohol on the brain and nervous system indicate that it is an anesthetic and paralyzant. Its supposed stimulant action is simply a stage of irritation of brief duration, quickly followed by an esthesia and depression;

hence the use of alcohol is a narcomania of the same class as that of opium. The alcoholic drug-taker is seldom concealed, and goes about boldly, boasting of his addiction and defending its use. The narcomaniacs using other drugs are always more or less secretive, and the symptoms and progress of the disease are complex and confusing to the ordinary observer.

Medicolegally, the drug-taker has come into great prominence in many unexpected ways. Thus, wills are found to date from some disturbed condition of the mind, when evidently under the influence of some narcotic drug. Contracts which have been disputed have revealed the narcomania of the maker, which was unsuspected before.

In a case of murder, it was shown that the assailant was delirious from large doses of quinin taken before the act. Often assaults are clearly traced to the drug-taking of the assailant. These cases are evidently increasing every year.

A practical question occurs: What can be done in the way of prevention and cure? and how is it possible to distinguish the causes and discriminate in the early stages of these manias and possibly avert the dangers which are certain to follow?

In many of these addictions the chronicity of the case is such that efforts to cure are frequently fruitless, no matter what form of treatment is used. The

alternations of sanity and insanity give encouragement to the theory of vice and the possibility of successful treatment by fear and punishment, but literally this has been found to increase the disorder and make the person more helpless. Evidently the time has come for a fuller recognition of these psychoses and insanities and for a demand that they should come under observation and treatment.

In the near future all such persons will be sent into detention hospitals where they may be treated and come under scientific observation. Here the drug may be removed and a degree of health restored, and the history of the case be studied until its progress and characteristics are known. Later, should the person prove to be a chronic case, he should be placed in a farm colony for more permanent restraint and treatment. These colonies should be semi-military cottage hospitals scattered through the country, with accommodations for from fifty to a hundred patients, where occupation is made a large part of everyday treatment. Restraint and medicinal and hygienic care should constitute the principal methods of treatment. Here suitable surroundings, with exact, uniform conditions of life, continued for long periods, would most likely restore many to health and useful citizenship. Others would be protected, housed, and made self-supporting.

In the detention hospital the acute cases, after withdrawal of the drug, could go out on parole under observation, with liability to be returned any moment from relapse. There these cases could be regulated and cared for, and the possibility of subsequent home treatment by the family physician could be determined and carried out most practically.

These are mere outlines of general plans of treatment, which are not only practical, but whose success is assured in many ways. All such hospitals, both public and private, should be legalized and have full power of restraint of each patient. The very wealthy cases could find private treatment in small homes, and the middle classes would go to the detention hospital for temporary treatment, then go back to the family physician, while the large armies of chronic incurable cases would, after a period of observation at the detention hospital, go into farm colonies and remain during life.

The physical character of morphinism and other narcomanias is beyond all question. Their cure and prevention are equally certain in a majority of cases with adequate treatment, and are only limited by ignorance of the laws of causation and the growth and development of the disease. There can be no doubt that these cases will be successfully treated in the near future by the family physician, the de-

tention hospital, and the farm colony, and the family physician again.

This new field of psychopathy is open for settlers. We are on its borders, and the ever-widening vista and promise of permanent cure for many who are helpless should arouse the keenest interest to go forward and utilize the practical facts at our command.

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